JUNE | 1957

products finishing

FINISHES ON METAL PRODUCTS

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LEA SATIN FINISH
...in modern lamp fashions by LIGHTOLIER
it's
a
finish
that's
functional, fashionable, economical
As modern as tomorrow — this lamp from Lightolier's Fleetwood Collection created by Gerald Thurston, engineered by Lightolier, and the trim satin finished with Lea Compound. Lightolier says this LEA Satin Chrome Finish was chosen because it's modern, it harmonizes with other finishes and it's extremely durable. And we might add that it's a finish that's economical to produce.
Why not go modern on your finishing line? Why not try a Lea Satin Finish on your product? It will look terrific, it will have real consumer appeal and it will reduce your finishing costs.
Write or call us for an answer to your finishing questions.
The Hallmark of Quality Products
THE LEA MANUFACTURING CO.
16 CHERRY AVE., WATERBURY 20, CONN.

For more data circle **301** on Reader Service Card

(THIS CARD VOID AFTER AUGUST 1, 1957)

1	17	33	49	65	81	97	113	129	145	301	-2nd Cover	330	346	362	378	394	410	426	442
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5	21	37	53	69	85	101	117	133	149	305	318	334	350	366	382	398	414	430	446
6	22	38	54	70	86	102	118	134	150	306	319	335	351	367	383	399	415	431	447
7	23	39	55	71	87	103	119	135	151	307	320	336	352	368	384	400	416	432	448
8	24	40	56	72	88	104	120	136	152	308	321	337	353	369	385	401	417	433	449
9	25	41	57	73	89	105	121	137	153	309	322	338	354	370	386	402	418	434	450
10	26	42	58	74	90	106	122	138	154	310	323	339	355	371	387	403	419	435	451
11	27	43	59	75	91	107	123	139	155	311	324	340	356	372	388	404	420	436	452
12	28	44	60	76	92	108	124	140	156	312	325	341	357	373	389	405	421	437	453
13	29	45	61	77	93	109	125	141	157	313	326	342	358	374	390	406	422	438	454
14	30	46	62	78	94	110	126	142	158	314	327	343	359	375	391	407	423	439	455
15	31	47	63	79	95	111	127	143	159	315	328	344	360	376	392	408	424	440	456
16	32	48	64	80	96	112	128	144	160	316	329	345	361	377	393	409	425	441	457

NAME _____ POSITION _____

COMPANY _____

STREET _____

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14	30	46	62	78	94	110	126	142	158	314	327	343	359	375	391	407	423	439	455
15	31	47	63	79	95	111	127	143	159	315	328	344	360	376	392	408	424	440	456
16	32	48	64	80	96	112	128	144	160	316	329	345	361	377	393	409	425	441	457

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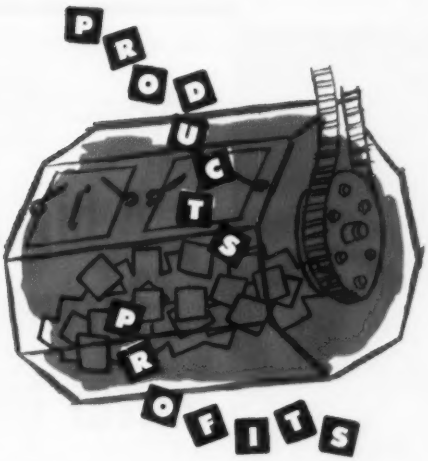

Here's an exciting new game:

PUT your products in the barrel
TAKE your profits out

One of the greatest money-saving opportunities in metal-working lies in the use of barrels to finish parts by the hundreds in place of conventional methods that finish one part at a time.

Barrel finishing makes easy work of many tough jobs of grinding, deburring and buffing by wheel.

One Oakite customer changed to barrel methods to deburr curved stainless steel strips that are 14 inches long. The cost for deburring 20,000 strips was reduced from $3,000 to $125.00.

FREE For a copy of *"Precision Barrel Finishing"*—containing valuable information on cutting down, deburring, descaling, and burnishing—write to Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

Export Division
Cable Address: Oakite

OAKITE

Technical Service Representatives in Principal Cities of U. S. and Canada

For more data circle 304 on Reader Service Card

Announcing...

A big step forward in barrel finishing

Improved ALUNDUM TUMBLEX* "A" abrasive brings you many new "Touch of Gold" advantages*

The new Norton TUMBLEX "A" abrasive has exceptionally long life . . . great resistance to wedging in work-piece crevices . . . adds attractive lustre . . . and can handle the widest variety of parts.

It performs several operations at once — removing flash, scale, tool marks and burrs, while forming radii and finishes to the required microinch. It is also better sized, more uniform in shape and available in a wider range of sizes.

SIZES NOW AVAILABLE

No.	Size	No.	Size
00	1½" to 2"	3½	5/16" to 3/8"
0	1" to 1½"	4	7/32" to 5/16"
1	3/8" to 1½"	5	3/16" to 1/4"
1½	1 1/16" to 3/8"	6	1/8" to 3/16"
2	5/16" to 3/4"	8	3/32" to 1/8"
2½	1/2" to 5/8"	10	standard 10 mesh
3	3/8" to 1/2"	12	standard 12 mesh

Every one of these sizes has advantages that will increase product value and cut the costs of general barrel finishing. That's how the improved TUMBLEX *"A" abrasive will step up your profit-boosting "Touch of Gold" to a new high.*

Send Your Work Samples to our enlarged Sample Processing Department — and include a finished piece. We will barrel finish the samples with new TUMBLEX "A" abrasive — or any Norton tumbling abrasive that may be more suitable — and explain how you can improve finishing operations. NORTON COMPANY, *General Offices,* Worcester 6, Mass. Plants and distributors around the world.

G-311

NORTON
ABRASIVES

Making better products... to make your products better

NORTON PRODUCTS:
Abrasives • Grinding Wheels
Grinding Machines • Refractories

BEHR-MANNING DIVISION:
Coated Abrasives • Sharpening Stones
Behr-cat Tapes

*Trade-Marks Reg. U. S. Pat. Off. and Foreign Countries

For more data circle **305** on Reader Service Card

This is a plain Ruff-L-Buff after wearing off about one inch in testing operations and then trimming. Loose threads, broken material and numerous small holes due to excessive heat and abrasion of the cloth are apparent.

30%

LONGER BUFF LIFE

This Binderized Ruff-L-Buff shown here was subjected to the identical test undergone by the untreated buff – yet look at the difference! Notice the absence of thread or cloth breakage of any kind, proof of Binderizing's effect on buff life.

with H-VW-M Binderized* Ruff-L-Buffs®

Not just "another type of buff," but a revolutionary H-VW-M process which impregnates the entire Ruff-L-Buff with the same organic binder used in buffing compounds. From these "Binderized" Ruff-L-Buffs come a host of practical, cost-cutting advantages, proved over many months in actual production line operations.

Item by item, these are the six major advantages of the H-VW-M Binderized Ruff-L-Buff.

- **Longer buff life** – damage from overheating eliminated by pre-lubrication of buffing material, preventing excess frictional heat caused by constant flexing. This additional buff life has averaged 30% in actual test runs.
- **Better compound adherence** – the binderizing impregnation creates an affinity between buff and compound. The compound does the cutting, not the buff.
- **Faster cutting action** – more compound is retained on the buff, insuring an even cut for a longer period without re-application of compound.
- **Extended composition life** – additional binder in the cloth ensures better abrasive adhesion, longer life of both composition and buff.
- **Heading-up time** – new wheels require only application of the compound to be ready for immediate operation.
- **Cooler running** – in addition to pre-lubrication, six holes in the center and twelve air channels in the center rim provide a forced air circulation over all cloth surfaces.**

And, of course, Binderized Ruff-L-Buffs retain such important features as *bias-cut cloth* to prevent unravelling, *perfect buff balance* for uniform rotation and wear, and *exclusive Red-E-To-Use face* that takes compound without need for surface preparation.

H-VW-M bias-cut Sisalweev buffing wheels are also available in Binderized types.

* Patent Pending
** Patent No. 2,140,208

For complete information on H-VW-M Binderized Ruff-L-Buffs and other specialized buffs write for Bulletin No. B-102. **Hanson-Van Winkle-Munning Company, Matawan, New Jersey. Offices in principal cities.**

H-VW-M

PLATEMANSHIP – Your H-VW-M combination – of the most modern testing and development laboratory – of over 80 years experience in every phase of plating and polishing – of a complete equipment, process and supply line for every need.

Industry's Workshop for the Finest in Plating, Anodizing, and Polishing Processes • Equipment • Supplies

For more data circle 306 on Reader Service Card

beautiful blacks
for superior product appeal . . .
EBONOL OXIDE FINISHES
For STEEL, COPPER, BRASS and ZINC
• maximum wear resistance
• high adhesion
• jet blackness
With extensive laboratory facilities, a staff of trained technicians in the plant and in the field, and years of practical experience, Enthone Incorporated is exceptionally well equipped and qualified to study your metal blackening requirements (or any other difficult metal finishing problems) and recommend a practical solution. Write now, outlining your needs.
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442 ELM STREET, NEW HAVEN 11, CONNECTICUT
Metal Finishing Processes • Electroplating Chemicals
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products finishing

Vol. 21 No. 9 June, 1957

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Why Use A "Copy-cat" Finger-Buff?*

Insist on the Original Finger-Buff* . . .

The

CHURCHILL Finger-Buff*

❖ Let the Churchill Finger-Buff* . . . the original Finger-Buff* . . . prove its effectiveness to you . . . prove its greater flexibility and faster cutting action!

❖ Let Churchill experience work for you. Churchill originated the Finger-Buff* in 1937 and since then the designing of Churchill Finger-Buffs* has been Churchill's exclusive business.

❖ There is a Churchill Finger-Buff* available for every polishing, buffing and coloring operation. Simply write us your buffing problem and Churchill engineers will select the Churchill Finger-Buff* that meets your requirements . . . that will cut your operating expenses and give you superior results in every respect.

❖ Churchill Finger-Buffs* are made from sisal or cloth . . . always bias-cut . . . always top grade material . . . and in all sizes from 3" to 21" diameters.

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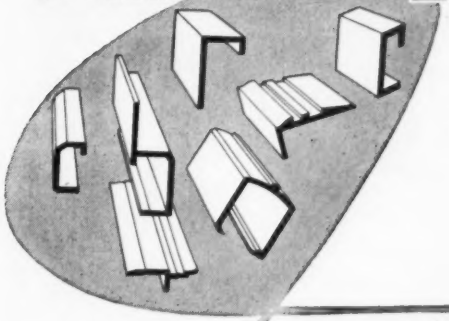
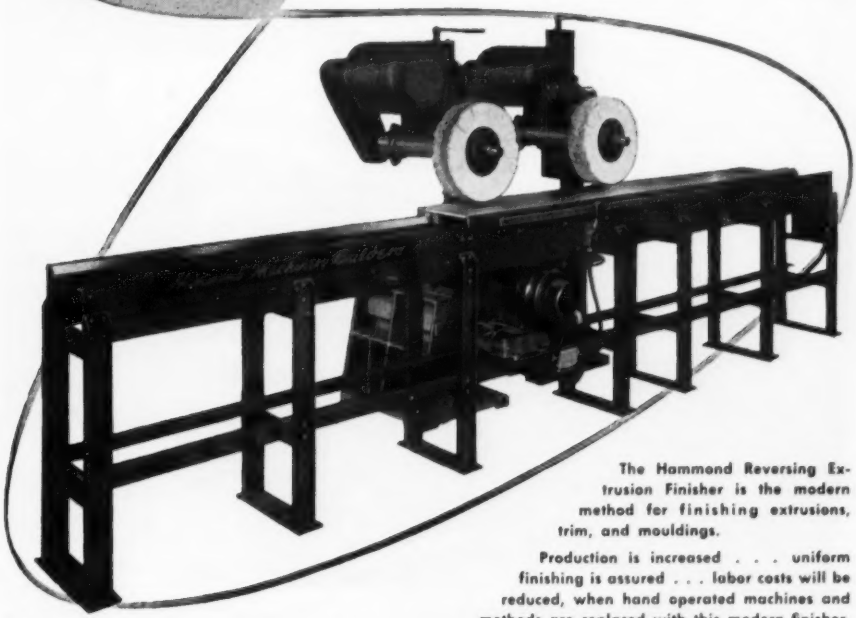
REVERSING EXTRUSION FINISHER

for LOW COST, VOLUME PRODUCTION FINISHING OF EXTRUSIONS, TRIM AND MOULDINGS





The Hammond Reversing Extrusion Finisher is the modern method for finishing extrusions, trim, and mouldings.

Production is increased . . . uniform finishing is assured . . . labor costs will be reduced, when hand operated machines and methods are replaced with this modern finisher.

Two-Head Machine shown . . . any number of heads, and length of conveyor, can be supplied to suit your job.

SEND SAMPLES and we will show you how much you can speed up production and cut costs.

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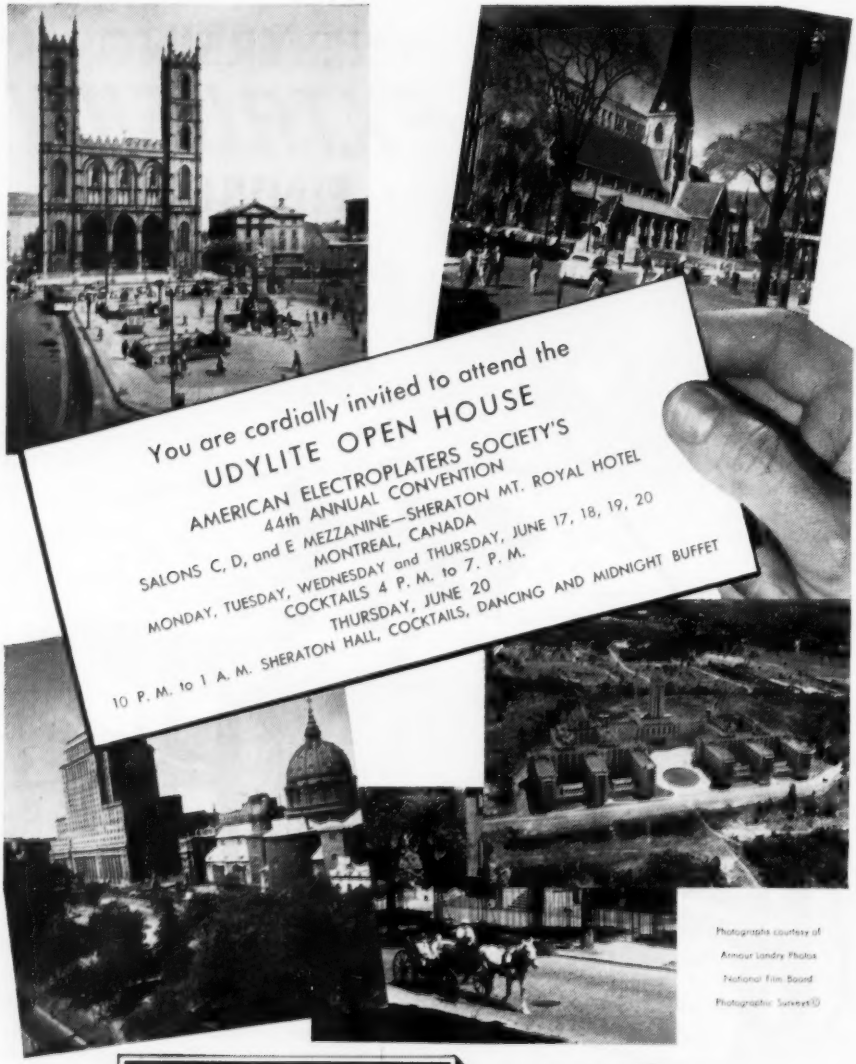
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AMERICAN ELECTROPLATERS SOCIETY'S
44th ANNUAL CONVENTION
SALONS C, D, and E MEZZANINE—SHERATON MT. ROYAL HOTEL
MONTREAL, CANADA
MONDAY, TUESDAY, WEDNESDAY and THURSDAY, JUNE 17, 18, 19, 20
COCKTAILS 4 P. M. to 7. P. M.
10 P. M. to 1 A. M. SHERATON HALL, COCKTAILS, DANCING AND MIDNIGHT BUFFET
THURSDAY, JUNE 20

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THE Udylite CORPORATION
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WORLD'S LARGEST
PLATING SUPPLIER

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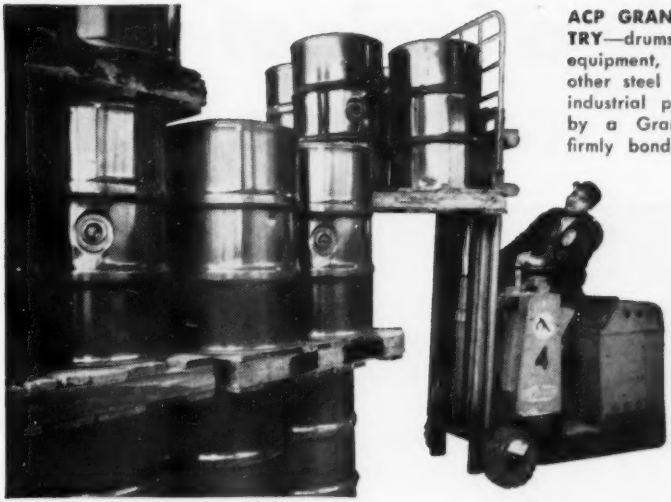

ACP GRANODINE IN INDUSTRY—drums, materials handling equipment, and a great many other steel products throughout industrial plants are protected by a Granodine base which firmly bonds the paint.

ACP *Granodine*® — BASE FOR DURABLE PAINT FINISHES ON DRUMS, MATERIALS HANDLING EQUIPMENT, AND OTHER STEEL PRODUCTS USED IN INDUSTRIAL PLANTS

IN THE HOME—ranges, refrigerators, freezers, washers and dryers are among the many products whose sparkling finish is firmly anchored to the metal by an ACP Granodine coating.

ACP Granodine firmly bonds the paint finish on many steel products used in industrial plants, giving them lasting protection by converting the surface to a nonmetallic phosphate coating. This chemically deposited film greatly increases the adhesion of the finish and also provides high corrosion resistance—even when used in conjunction with a relatively thin and flexible paint film.

LEARN MORE ABOUT ACP GRANODINE. Bulletin 1380 describes the various types and gives information which will help you select the proper one for your particular application. Write for your copy today.

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DETROIT MICH. • ST. JOSEPH, MO. • NILES, CALIF. • WINDSOR, ONT.

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FOR BETTER SERVICE, BUY
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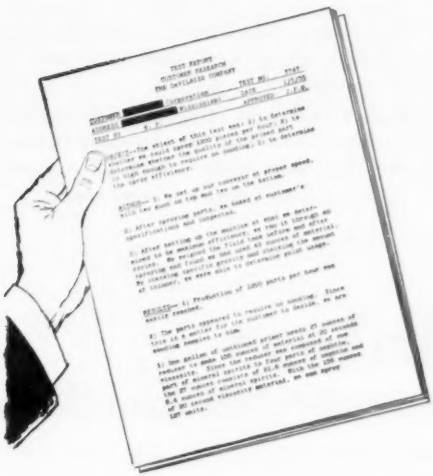
finishing method—
Painting pay off?

Here's how to find out . . . in advance

Before you invest a cent in equipment, DeVilbiss will put your product or component part through a series of trial runs on already-installed automatic spray equipment. The results of these trial runs in the fully equipped DeVilbiss Laboratory will determine the actual unit rate production, material consumption, film build attainable and over-all quality of the finish. Thus, you'll know in advance what economies, if any, can be derived by setting up new facilities or converting your present operations to fully or semi-mechanized spraying. Why not review *your* finishing method?

YOU GET A FULL TEST REPORT



1 Without obligation, the DeVilbiss representative will survey your problem, secure production data and the finish requirements.

2 In the DeVilbiss Customer Laboratory, a trial run will be set up on automatic transverse, rotary, or chain-on-edge spray painting equipment.

3 Test results are sent to you. You'll know in advance if painting your product automatically is practical and economical.

We'd like to help you. Call our nearest representative or write us direct. The DeVilbiss Company, Dept. 318, Toledo 1, Ohio.

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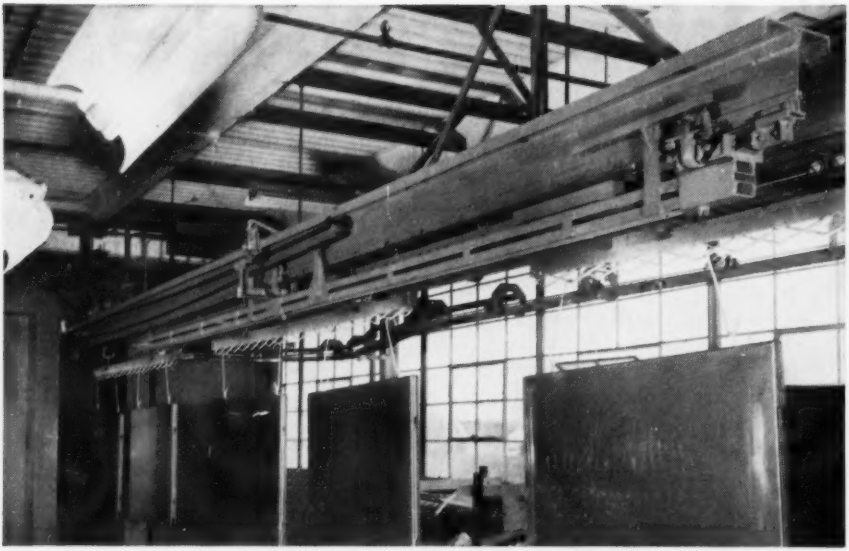


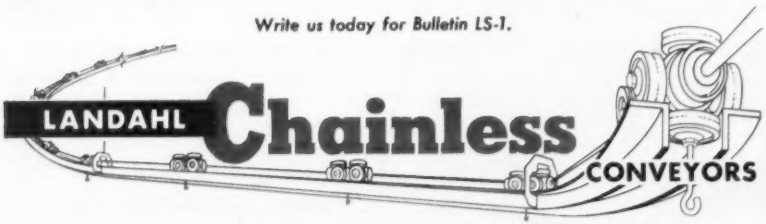
Automatic Finishing . . .
Power **LANDAHL** and
AMERICAN MONORAIL

Space was saved and automatic finishing achieved by combining two overhead handling systems.

American MonoRail cars carrying metal panels move through degreasing, priming, finishing and baking. In each operation either loading or unloading is performed automatically by power—the Landahl Chainless Conveyor acting as a "pusher" over most of the system.

Here is "team work" engineering to take advantage of the flexibility of both American MonoRail and Landahl Chainless Conveyors. To cut your handling costs, write today.

Write us today for Bulletin LS-1.



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A SUBSIDIARY OF THE AMERICAN MONORAIL COMPANY

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WAGNER ISO-BRITE COPPER . . .

"The efficiency of your new Iso-Brite Copper bath will enable us to put a $7500 'semi' to work on other jobs. We get a deposit of .0005" in a 15 minute cycle and could easily get .0006" to .0008" if required. Iso-Brite needs less maintenance than any bath within our experience." (Robert Hilfinger, Pres. Hilfinger Corp. to Jos. R. Wagner.)

doubles

Die cast automotive grill part ready for nickel and chrome.

SEMI-AUTOMATIC PLATING!

CONVERSION TO ISO-BRITE ELIMINATES ONE MACHINE . . .

The record at Hilfinger Corp., Toledo, Ohio, tells a simple story. This big, 115,000 sq. ft. die casting plant with a 200-man plating department originally required two semi-automatic plating machines for plating copper before nickel and chrome on large automotive die castings. New Wagner Iso-Brite Copper bath was installed eight months ago in one tank, replacing a leading proprietary copper bath, both machines being operated by a single generator. Excessive burning of the competitive plate resulted. The single machine charged with Wagner Iso-Brite Copper now turns out Hilfinger's entire production requirement to the customer's specification, permitting the surplus semi-automatic to be devoted to other production.

If reducing finishing costs is of interest to you, consider these reasons why this new Wagner-processed chemical is making records everywhere:

Wagner Iso-Brite Copper offers

1. Ease of control
2. High anode efficiency—copper cyanide additions virtually eliminated
3. Much heavier plate
4. Fine grained, dense, ductile, fully bright
5. Freedom from roughness
6. Wide operating range—temperature 135-165°; up to 60 amperes per square foot
7. High tolerance of organic contamination

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Special Reports On Finishing Non-Ferrous Metals

NUMBER III—Lustrous, Corrosion-Resistant Finishing with Chemical Polishing Iridite

WHAT IS IRIDITE®?

Briefly, Iridite is the tradename for a specialized line of chromate conversion finishes. They are generally applied by dip, some by brush or spray, at or near room temperature, with automatic equipment or manual finishing facilities. During application, a chemical reaction occurs that produces a thin (.00002" max.) gel-like, complex chromate film of a non-porous nature on the surface of the metal. This film is an integral part of the metal itself, thus cannot flake, chip or peel. No special equipment, exhaust systems or specially trained personnel are required.

Chromate conversion coatings are widely accepted throughout industry as an economical means of providing corrosion protection, a good base for paint and decorative finishes for non-ferrous metals. Certain of these coatings also possess chemical polishing abilities that have luster-producing, as well as corrosion-inhibiting, effects on zinc and cadmium plate, zinc die castings and copper alloys. However, continued developments in this field have been so rapid that many manufacturers may not be completely aware of the breadth of application of this type of finish. Hence, this discussion of the many ways in which this chemical polishing characteristic can be used in final finishing or pre-plating treatments to produce a lustrous appearance with distinct display and sales appeal and appreciable savings in cost. Report I on decorative, corrosion-resistant finishes and Report II on paint base, corrosion-resistant finishes are available on request.

The degree of luster possible on a surface is a function of the degree to which the surface can be smoothed. Leveling to provide a smooth surface can be achieved by mechanical or chemical means, or a combination of these, depending upon the luster desired and the original condition of the metal. Chemical polishing effectively imparts luster otherwise difficult and costly to obtain. For this reason, it is often used to supplement or entirely replace mechanical polishing, depending upon the application and the original condition of the metal. Chemical polishing has the additional advantage of providing overall treatment of the submerged part. It reaches into even the deepest corners and recesses that are otherwise inaccessible. Certain of the Iridites are specifically designed to perform this chemical polishing operation. In addition they provide corrosion protection as do all Iridites, thus may be used either as a final finish or a pre-plating polish.

If Iridite is to be used as a final finish, in contrast to pre-plating treatment, the

(ADV.)

chromate conversion coating generated is allowed to remain, providing good corrosion resistance. Color inherent in these Iridite films ranges from a yellow cast to yellow iridescent. These coatings may be used without further treatment where this color is acceptable and good corrosion resistance is desired. Further, these basic coatings can be tinted by dyeing. Among the dye tints available are shades of red, yellow, blue and green. If desirable, the basic coatings can also be modified by a bleach dip leaving a clear bright or blue iridescent finish. In all cases bleaching reduces corrosion resistance.

As examples of this type of final finishing, Iridites #4-73 and #4-75 (Cast-Zinc-Brite) make possible for the first time, lustrous chemical polishing of the as-cast surface of zinc die castings. Thus, in many cases, sizeable savings in finishing cost are realized by elimination of plating costs. This economical method can be used on tools, appliance parts, toy pistols, locks and many other small castings. Another example is the treatment of copper and brass parts, such as welding tips, to eliminate buffing and provide additional corrosion resistance. In many cases, handling costs are reduced appreciably by replacing piece-part handling with bulk processing. Still another example of the use of this chemical polishing and protective quality of Iridite is a simple system of zinc plate, Iridite and clear lacquer instead of more costly electroplated finishes. Typical of this type of lustrous finish are builders hardware and wire goods.

As a pre-plating treatment, in contrast to final finishes, Iridite can be used to chemically polish zinc die castings or copper prior to plating. In such cases, Iridite should be applied as an in-process step, so that the protective film is removed before the plating cycle. The savings in handling, material and labor costs are obvious. This process has made it practical to plate chrome directly over copper on steel, conserving nickel, yet producing a lustrous chrome finish. Used after stripping faulty plate in reprocessing zinc die castings, Iridite restores luster to the casting, making possible replating without blistering.

Other Iridite finishes are available to produce maximum corrosion resistance, a wide variety of decorative finishes and excellent bases for paint on all commercial forms of the more commonly used non-ferrous metals. As a final finish, appearance ranges from clear bright to olive drab and brown and many films can be bleached or dyed. As a paint base Iridite provides excellent initial and retentive paint adhesion and a self-healing property which protects bare metal if exposed by scratching. Iridites have low electrical resistance. Some can be soldered and welded. The Iridite film itself does not affect the dimensional stability of close tolerance parts.

Iridites are widely approved under both Armed Services and industrial specifications because of performance, low cost and savings of materials and equipment.

You can see then, that with the many factors to be considered, selection of the Iridite best suited to your product demands the services of a specialist. That's why Allied maintains a staff of competent Field Engineers—to help you select the Iridite to make your installation most efficient in improving the quality of your product. You'll find your Allied Field Engineer listed under "Plating Supplies" in your classified telephone book. Or, write direct and tell us your problem. Complete literature and data, as well as sample part processing, is available. Allied Research Products, Inc., 4004-06 East Monument Street, Baltimore 5, Maryland.

(ADV.)
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Adaptability

Flexibility Mobility

that's what you get in an

Acme G4

POLISHING AND BUFFING MACHINE

Easy adaptability to new work assignments —that's the real measure of usefulness for any basic power unit. The Acme G4 polishing and buffing lathe passes this test with no difficulty on any automatic operation.

This versatile lathe converts from buffing to polishing. On one job it may be stroking or oscillating, on another it may be stationary. The unit requires no superstructure for support. It is adjustable four ways horizontally on its universal base, and two ways on the vertical column. The head angles to any degree from horizontal to vertical and operates in any position.

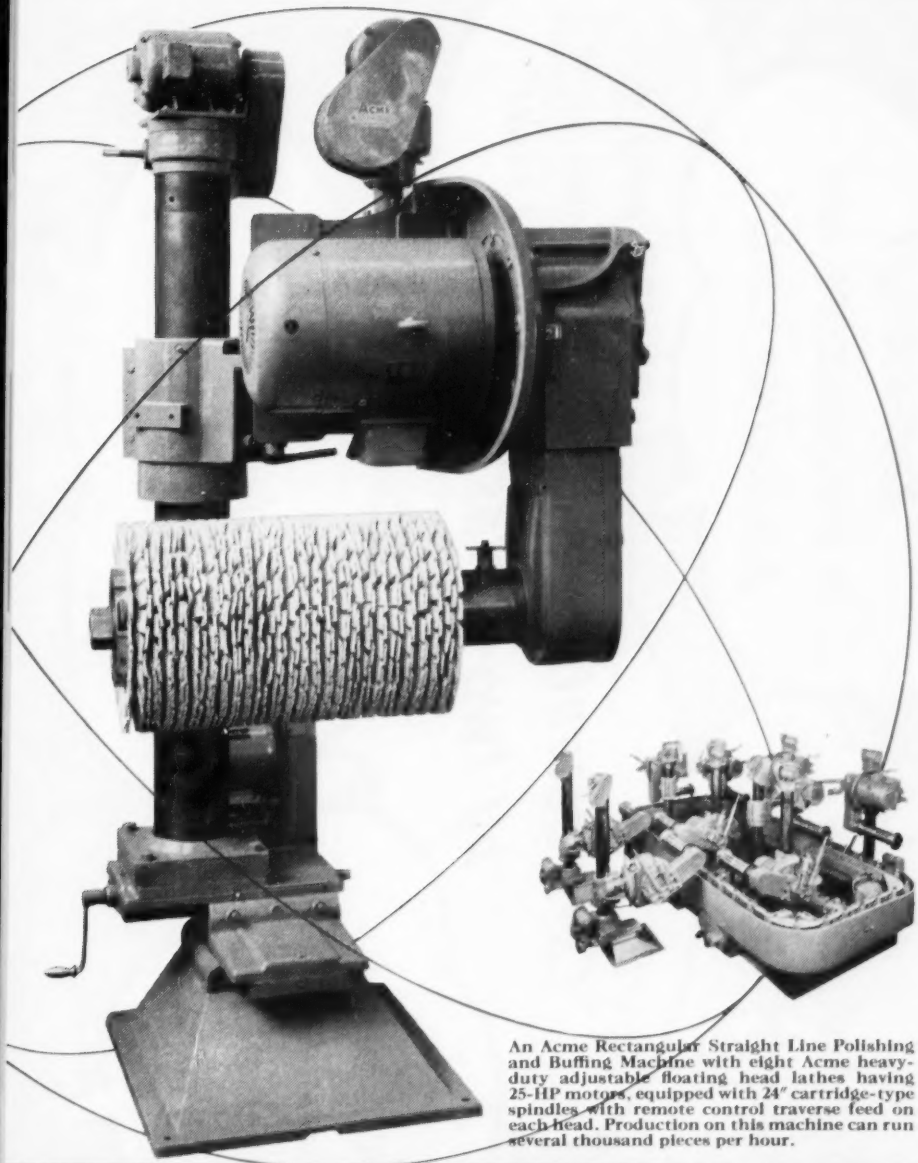
The results of this efficiency in the Acme G4 are: (1) more complete and constant high quality automatic finishing of *unusual shapes,* (2) a general reduction in belt, buffing wheel and compound costs, and (3) complete equipment adaptability to next year's product designs.

To help you combine these Acme G4 lathes with automatic work-holding or fixturing equipment for high-production, low-cost finishing, Acme offers the services of a highly specialized engineering staff. There's no obligation for this consultation service. Give us a call.

LET ACME *Polish Off* YOUR FINISHING PROBLEMS

ACME MANUFACTURING COMPANY

LEADING PRODUCERS OF



An Acme Rectangular Straight Line Polishing and Buffing Machine with eight Acme heavy-duty adjustable floating head lathes having 25-HP motors, equipped with 24" cartridge-type spindles with remote control traverse feed on each head. Production on this machine can run several thousand pieces per hour.

1400 E. 9 MILE ROAD, DETROIT 20, MICHIGAN

AUTOMATIC POLISHING AND BUFFING EQUIPMENT SINCE 1910

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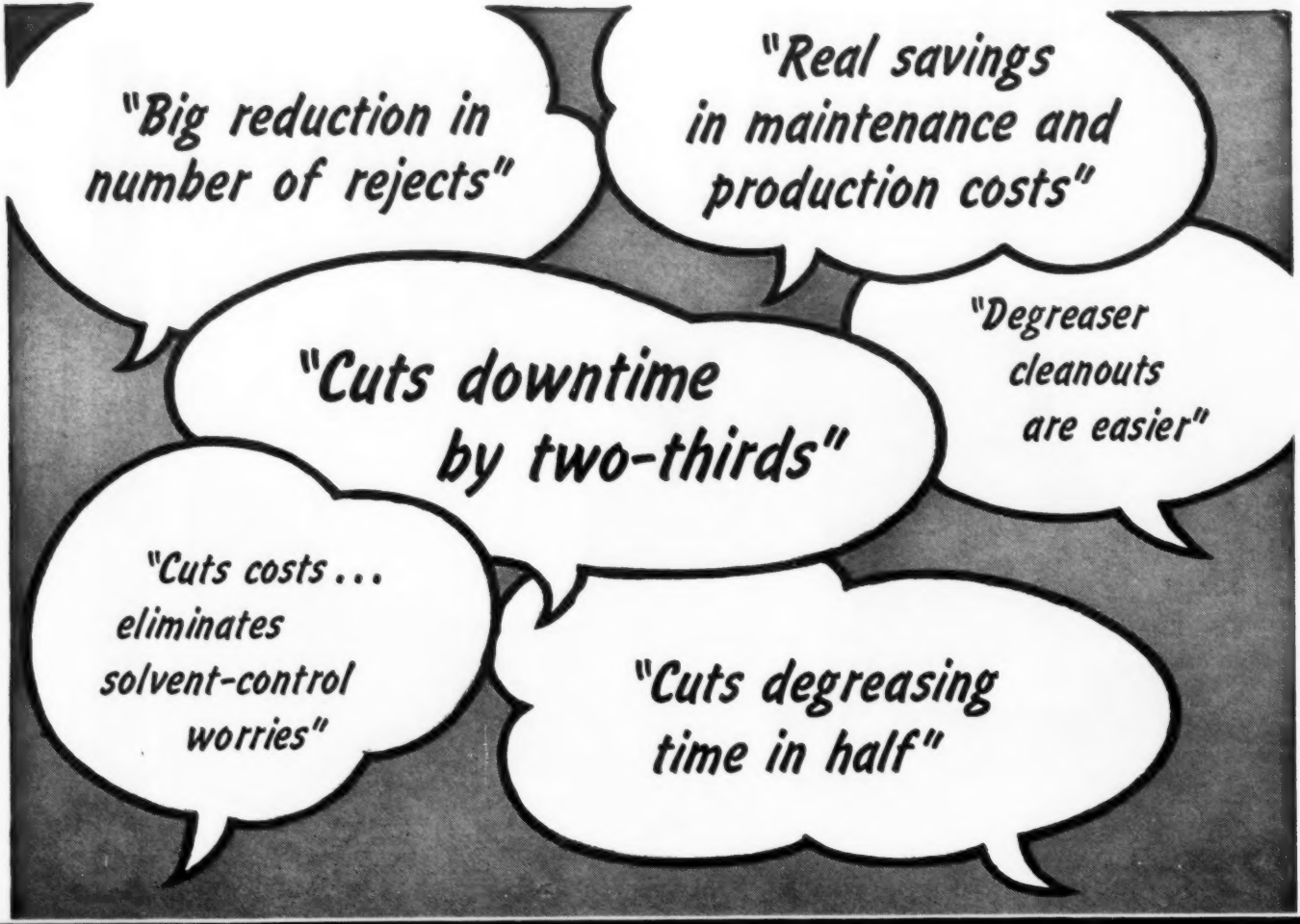

"Big reduction in number of rejects"
"Real savings in maintenance and production costs"
"Degreaser cleanouts are easier"
"Cuts downtime by two-thirds"
"Cuts costs ... eliminates solvent-control worries"
"Cuts degreasing time in half"

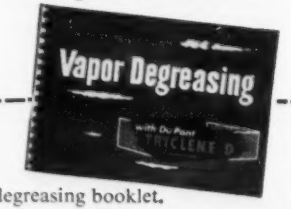
Here's why TRICLENE D is used for fast, thorough vapor degreasing

These statements represent the kind of degreasing results you can expect from "Triclene" D trichlorethylene. Manufacturers of products as different as automotive accessories, sporting goods, refrigerators, locks and builders' hardware—all users of "Triclene" D—made these comments.

They use it to clean grease and oil from all types of metals with every degree of surface polish. Users note that time between cleanouts is extended, and cleanouts are far easier. "Triclene" D maintains brighter cleaning—distillation after distillation—job after job.

Heat, light, air, acids and aluminum chloride will not affect "Triclene" D with its locked-in stabilizers. "Triclene" D trichlorethylene retains its original purity longer—contains nothing to harm even the most carefully machined surfaces. Yet it costs no more than other degreasing solvents!

Get all the facts on vapor degreasing. Du Pont's new book contains forty-two pages of data and illustrations on the latest metal-cleaning developments. Send for your copy—without obligation—today.



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TRICHLORETHYLENE

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BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Department PF-6
Wilmington 98, Delaware

☐ Please send me a copy of your new vapor-degreasing booklet.
☐ Please have your Representative phone for an appointment.

Name_____ Title_____
Company_____
Address_____
City_____ Zone_____ State_____

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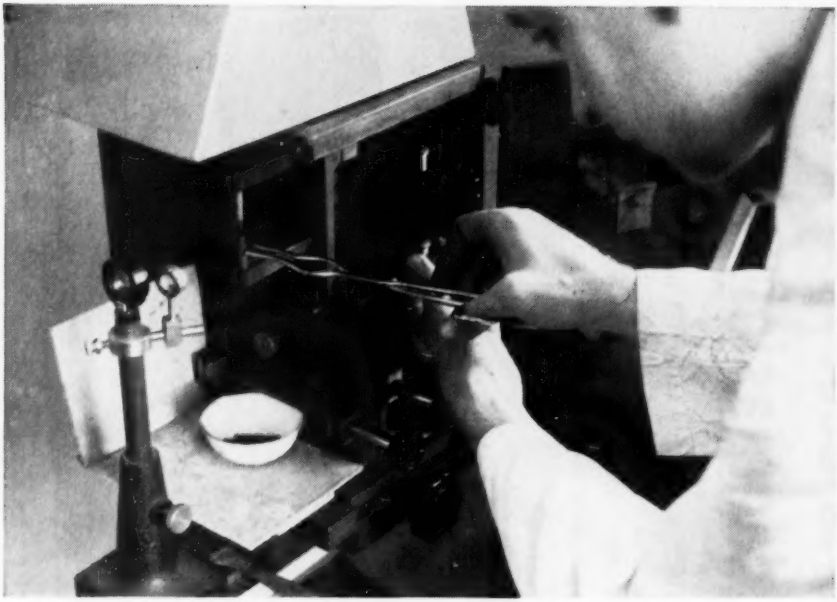

"We put a part of our company in every product"

"I guess you'd call our company a family business. My brothers and I have worked here almost as long as we can remember . . . and our Dad before us.

"We're not a big company as big companies go, but a few years ago we set out to make our Quality Control Lab one of the finest in the industry. We staffed it with men who are highly regarded and spent thousands upon thousands on test equipment . . . including the finest Spectrographic Instrument available. It took a lot of doing—and plenty of dollars, but it was worth it. We've grown steadily and it sure is a nice feeling to know that many of our regular customers include the finest platers in the country."

If you are a user of Copper, Nickel or Zinc Anodes, and if quality (at a competitive price) is an important factor to you, contact us! We manufacture them in a variety of sizes and shapes, and we can make them to your specifications.

Al Kerzner, *President*

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Serving Industry from Coast to Coast — since 1920

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This man is helping cut small parts drying time just about one-half...

Model 20 New Holland KREIDER Centrifugal Dryer

AIR-DRIES...as it SPIN-DRIES!

Now you can *spin-dry* small parts in continuous *fresh air* in as little as 15 seconds . . . cut drying time *just about one-half*.

Double-action drying gives you smooth moisture-free surfaces . . . reduces your finishing problems by eliminating the scarring and marring frequently responsible for costly "rejects."

Speed production . . . cut costs way down with New Holland's easy-to-run Model 20 Kreider Centrifugal Dryer.

Choose from 3 models engineered to meet your requirements: — Standard Model; Standard Model with Supplementary Electric Heat; Standard Model with Supplementary Steam Heat.

— SPECIFICATIONS: —

1 h.p. motor—220, 440, 550 volts—2- or 3-phase—spins 75 lb. loads at 825 r.p.m. . . . Quiet V-belt drive . . . 30-blade suction turbine draws air through spinner . . . Arc-welded steel-plate construction . . . Heavy-gauge woven steel mesh basket . . . Weight: 490 lbs. . . . Floor space: Just under 5 sq. ft. . . . Meets N.F.C. Specs. **Optional:** J.I.C. Control: Mounted on right, left side or wall. 160° supplementary heat: 2350-watt Chromalox, or steam.

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New Holland Machine Company
New Holland, Pa.

New Holland Machine Company

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Roto-Finish processes cut finishing costs, step up production

Savings on deburring, descaling, grinding, polishing, coloring and surface improvement by Roto-Finish barrel finishing processes are tremendous. Expensive hand finishing methods can be eliminated.

Roto-Finish Chips, Compounds and Machines are of the highest quality—Roto-Finish has never sacrificed quality for the sake of price. A continuous program of improvement of processes and products gives you better performance.

Roto-Finish guarantees results— There is no costly trial and error involved in the purchase of Roto-Finish equipment. You submit unfinished parts to Roto-Finish along with a finished sample and a description of the finish you require. These sample parts are processed by Roto-Finish to determine the right process to do the job. Roto-Finish guarantees to reproduce the same results in your plant, using Roto-Finish processes, that are achieved in sample processing.

Send for this Free Technical Data Folder

Roto-Finish COMPANY

3704 Milham Rd., Kalamazoo, Mich.

P. O. Box 988

Phone FI 3-5578

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ACCELERATED DEGREASING ACTION—

DEEP PENETRATING ABILITY

with *New* IMPROVED

KLEARALL 95

COLD DEGREASING SOLVENT

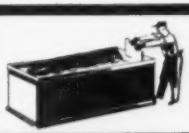
(For All Metals)

New, superior KLEARALL 95 Safety Solvent leaves the metal spotlessly clean, free of soil, grease and oily residues or discoloration—and saves you up to 70% of the cleaning cost of vapor degreasing. It requires no heat, vapor or rinsing. Drying time is exceptionally fast.

The new Klearall 95 has a new look, a new odor and an even higher toxicity rating. You'll know it by its attractive light blue color and more pleasing odor. The toxicity rating has been raised from 330 to 375 ppm for greater personnel safety.

The new Klearall 95 Safety Solvent is completely compatible with the previous formula. It has the same high recovery rate and exceptional stability.

FOR ANY METAL DEGREASING

Drum Cleaning of Small Parts	
Tank Cleaning in Quantity	
Automatic Conveyor Cleaning	

PLACE YOUR ORDER—You'll be sold on the fast, superior degreasing job it does at lower cost. Write for Klearall 95 Data Sheet No. SS-195.

OCTAGON PROCESS INC

Makers of FROIL Rust Preventive Oil and OCTASTRIP Paint Strippers

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STATEN ISLAND 1, N. Y.

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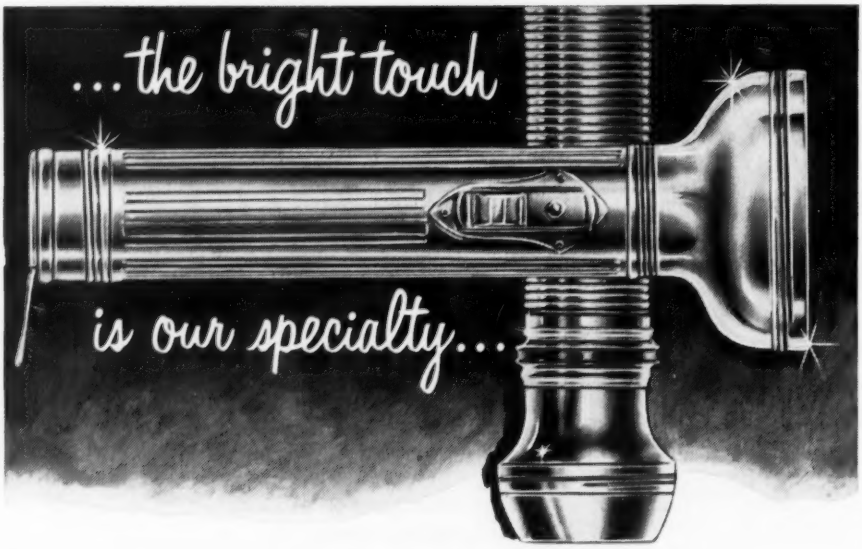

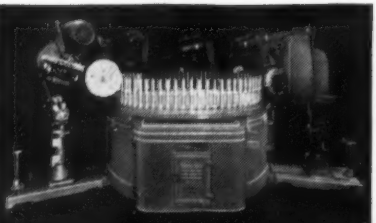

The bright touch on flashlights is just one of many successful PACKER-MATIC applications.

PACKER-MATIC completely automatic polishing, buffing and deburring machines are engineered to meet the demands of modern mass production methods for speed, economy and efficiency in finishing operations.

Whether you handle long production runs, short odd lot jobs, or a mixture of both, PACKER-MATIC is the machine for you. Let Packer's engineers help you meet your finishing requirements for faster, low cost polishing, buffing and deburring with more uniform results. Send blueprints or sample parts and we will show you how to speed up production and cut costs with a PACKER-MATIC.

PACKER-MATIC

THE PACKER MACHINE COMPANY • MERIDEN, CONN.

Pioneer Manufacturers of Automatic Polishing and Buffing Machines

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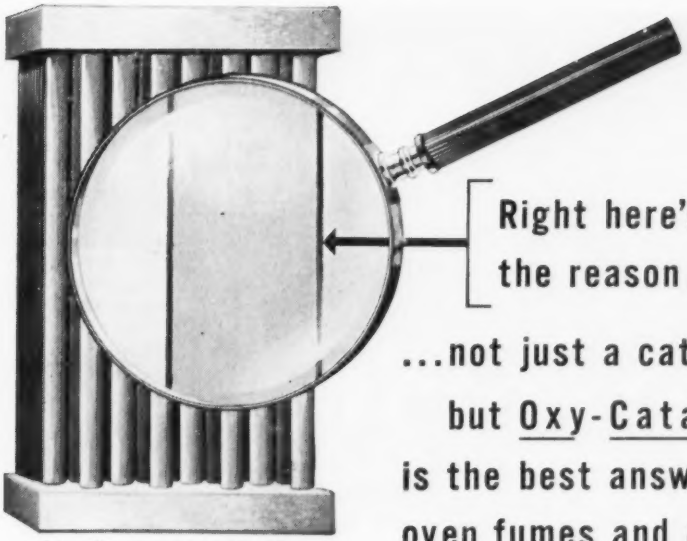


Enlarged cross-section drawing of an individual rod in an Oxycat unit

Right here's the reason...

...not just a catalyst but Oxy-Catalyst is the best answer to oven fumes and odors

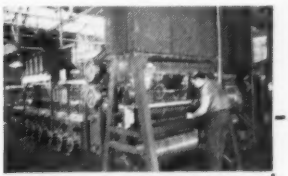
The secret lies in the .003-in. film on the porcelain Oxycat carriers. It's this more efficient catalyst which Oxy-Catalyst uses, a patented combination of alumina and platinum on porcelain, that gives better cleanup, better heat recovery, and longer catalyst life.

Oxycats can eliminate fumes and odors from drying ovens and other processes by oxidizing organic and combustible contaminants in the exhaust far more efficiently than any other catalyst ever developed.

To stop your oven fumes and odors—to recover waste heat—to reduce fire hazards and maintenance problems caused by troublesome condensates, Oxy-Catalyst offers a complete engineering service. We make the entire installation—engineered to your exact requirements—and we assume full responsibility for the performance of the equipment.

Oxy-Catalyst works closely with all leading oven manufacturers. And new ovens can be designed with the catalyst as an integral part of the oven's heating system. So when you order new ovens, specify Oxy-Catalyst equipment.

If you would like to compare—to see for yourself the remarkably high efficiency of an Oxy-Catalyst installation—fill in this coupon, or write on your business letterhead, for complete information now.



Oxycat units were installed at the end of this vertical drying oven to oxidize troublesome solvent and varnish fumes at John A. Roebling's Sons Corporation, Electrical Wire Division Plant. This installation has been operating now for over 4 years.

OXY-CATALYST, INC.

Industrial Division, Wayne, Pa., U.S.A.

Fume Elimination Processes and Equipment
Industrial • Automotive • Consumer Products

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Please send me complete information on your catalytic installations:

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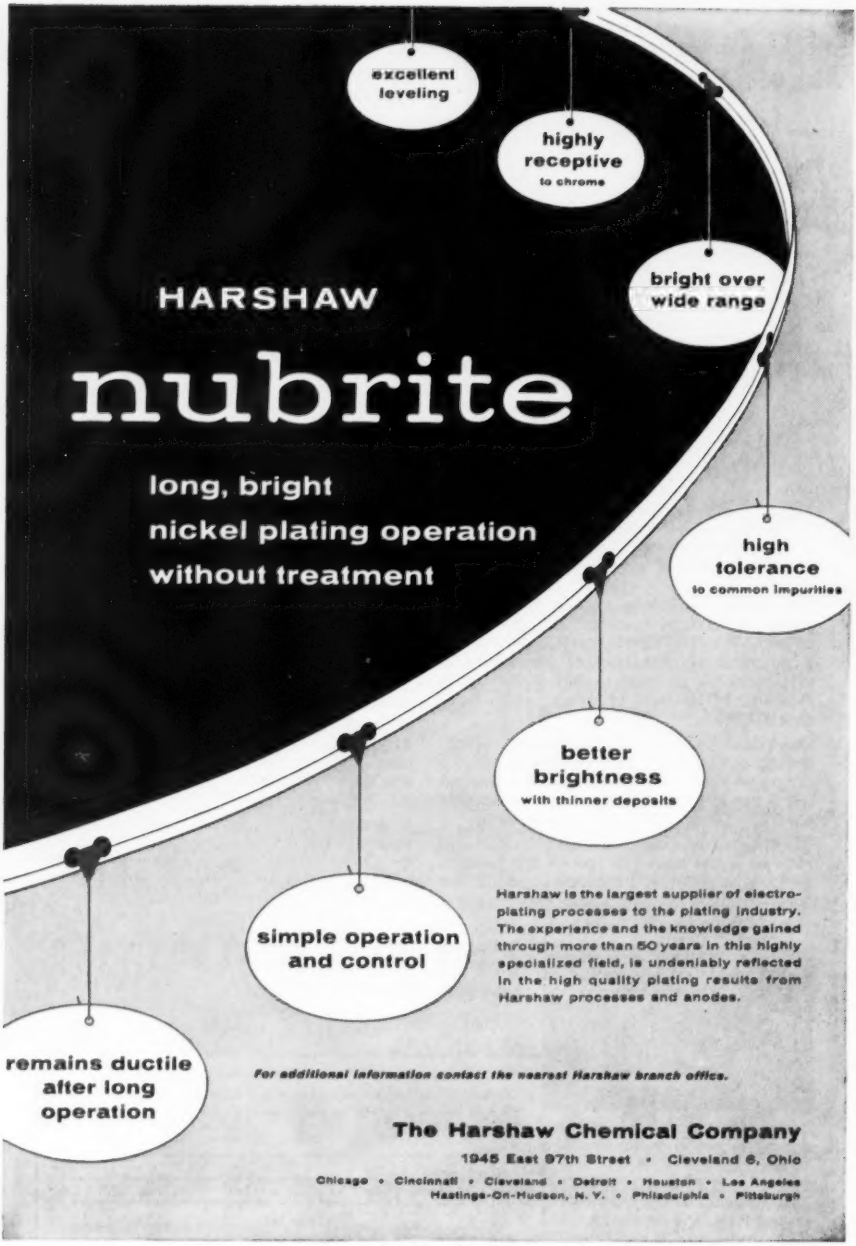
excellent leveling
highly receptive to chrome
bright over wide range
HARSHAW
nubrite
long, bright nickel plating operation without treatment
high tolerance to common impurities
better brightness with thinner deposits
simple operation and control
remains ductile after long operation
Harshaw is the largest supplier of electroplating processes to the plating industry. The experience and the knowledge gained through more than 50 years in this highly specialized field, is undeniably reflected in the high quality plating results from Harshaw processes and anodes.
For additional information contact the nearest Harshaw branch office.
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for more than **15,000** *customers in*
50 *varied industries throughout the world!*
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Feed Stuff, Mineral Feed
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Food
Glass
Insecticide and Fungicide
Laundry
Leather
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Metal Working
Oil Cloth
Optical
Paint, Varnish and Lacquer
Paper
Petroleum
Pharmaceutical
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Porcelain Enamel
Plastics
Pottery
Printing Ink
Pyrotechnic
Refractories
Rubber
Shade Cloth
Soaps
Textile
Veterinary Remedies
Welding Electrodes
Wall Paper

Here are typical Harshaw chemical products

Electroplating Salts, Anodes and Processes
Organic and Inorganic Dry Colors and Dispersions
Driers and Metal Soaps
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Ceramic Opacifiers and Colors
Fluorides
Glycerine
Preformed Catalysts, Catalytic Chemicals
Synthetic Optical Crystals
Agricultural Chemicals
Fungicides
Chemical Commodities

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FREE! This 16-page booklet lists the many chemicals available from Harshaw.

WRITE TODAY FOR YOUR COPY

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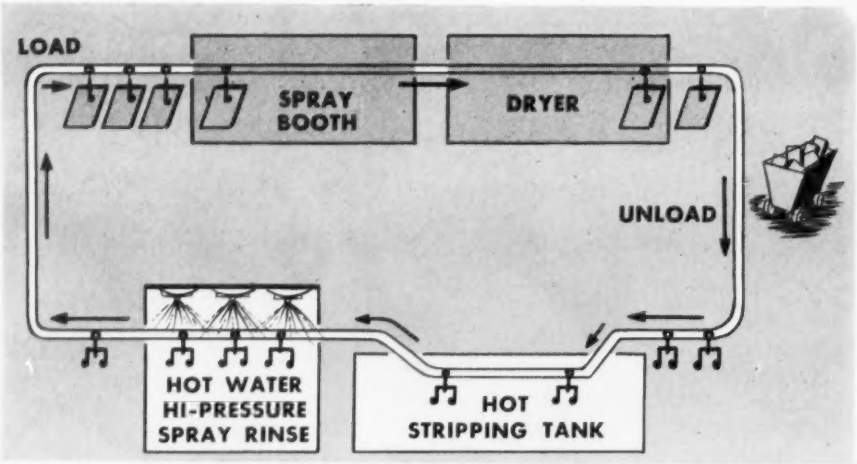

CONVEYOR LINE PAINT STRIPPING

With more and more plants incorporating the stripping of hooks, shields, trucks and other paint conveyor-line apparatus into the production line itself, there is an ever increasing need for an automatic stripping method which will work quickly, thoroughly and economically to prevent the build-up of over-spray.

And the answer to that need . . ? It's here, in this . . .

MAGNUS METHOD—Research by Magnus technicians has proven that the simple addition of a quantity of MAGNUS 751 to any of the Magnus Heavy-duty Alkaline Strippers provides unequalled speed and effectiveness. Even the difficult-to-remove types of paints and primers are effectively and thoroughly stripped. And, this method is highly economical, since the MAGNUS #751, in addition to increasing the effectiveness of the strippers, also extends the already-long life of the solution.

For full information on this modern production-line method, including detailed recommendations and methods for determining correct proportions, write today to Magnus, 208 South Avenue, Garwood, New Jersey.

magnus

Industrial Cleaning Division

MAGNUS CHEMICAL CO., INC.

—a world-wide organization specializing in cleaning and protection of all surfaces.

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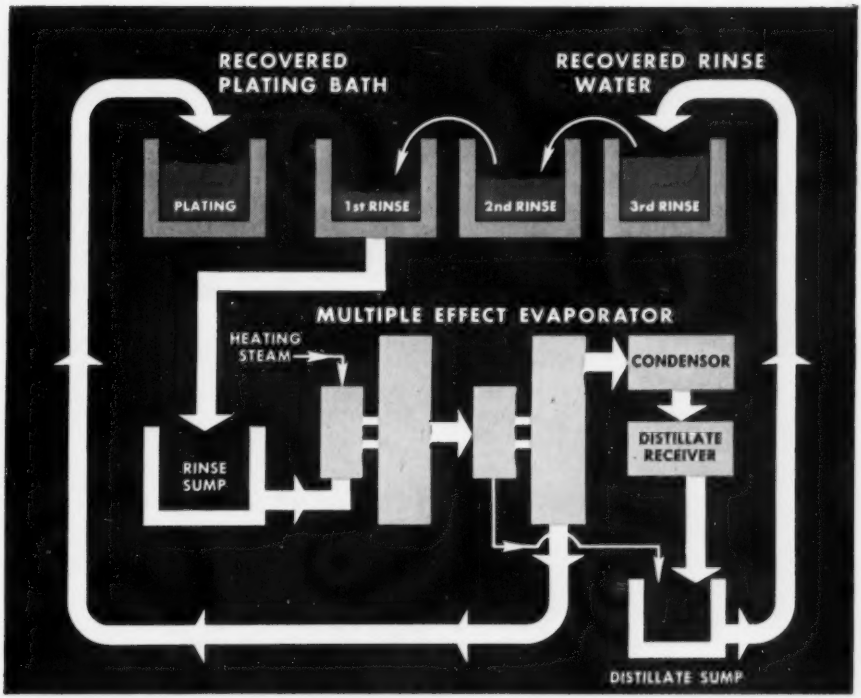

New recovery system cuts plating costs!

Industrial's Plating Bath Recovery Equipment provides complete recovery of acid and metal drag out losses, using a rapid evaporation process engineered to suit your operation. The savings can be fantastic . . . the system not only returns fresh plating solution to the bath and pure water to rinse tanks . . . it eliminates the high cost and trouble of neutralizing corrosive rinse water for disposal. In a typical case the replacement of solution and destruction of rinse water cost $12.46 per hour. **The Industrial System recovers the bath at a cost of $2.13 per hour.**

Unbelievable? . . . No sir! . . . these are systems designed by a company with a 30-year reputation for building the best in plating equipment. Let us prove it—our staff will be glad to make an analysis of your process, recommend equipment and estimate costs and savings.

Send for complete data

INDUSTRIAL

FILTER & PUMP MFG. CO.

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Please send me reprints of articles and literature on Industrial's Plating Waste Recovery Systems.

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Reg. Trade Mark

THE NAME THAT STANDS OUT IN BLACK OXIDE FINISHES

Type A Blackening Process For Steel

Improves Your Product
Increases Production
Cuts Costs

TROUBLE-FREE • ECONOMICAL • ATTRACTIVE

A comprehensive study of the application of a black oxide finish has been compiled and is now available in our latest catalog. The study also covers Black Magic Blackening Processes for other ferrous and non-ferrous metals; metal cleaners, rustproofing oils and waxes, plating specialties and a complete line of heat treating salts.

Write for your complimentary copy today.

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THE MITCHELL-BRADFORD CHEMICAL CO.

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QUALITY PRODUCTS OF CHEMICAL RESEARCH

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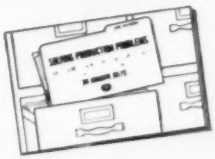
HOW WOULD YOU
SOLVE IT?

PRODUCTION PROBLEM: To cut unit costs and increase production of grinding off parting lines and other imperfections, and polishing die-cast aluminum vacuum cleaner nozzles prior to plating. Scott and Fetzer Co., makers of famous Kirby vacuum cleaners, were using set-up wheels in a three-grit sequence – #60, #120, #220 – to do this operation. Production was 6 finished units per hour.

SOLUTION: A 3M Representative suggested that this Cleveland, Ohio manufacturer switch to the 3M Method using Three-M-ite Cloth Belts, Grits #120 and #220. This method increased production 116% – from 6 to 13 finished nozzles per hour – *and* eliminated one grinding operation! Too, the finer polished surface obtained with 3M Belts made for far superior final plating.

• A 3M Representative can help solve *your* grinding and finishing problems, too. His services are available without cost or obligation. Call him today!

Write Minnesota Mining and Mfg. Co., Dept. FH-67, St. Paul 6, Minn., for FREE copy of booklet "*Case History Reports on 3M Abrasive Belts.*"



3M ABRASIVES

Made in U.S.A. by Minnesota Mining and Mfg. Co. General Offices: St. Paul 6, Minn. In Canada: P.O. Box 757, London, Ontario. Export Sales Office: 99 Park Avenue, New York City.

PRODUCT OF 3M COMPANY RESEARCH

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GOOD MACHINERY SINCE '82

MODERN *Self Contained* GRINDER-POLISHER

Hammond Variable Speed (1500 to 3000 RPM) Polishing and Buffing Lathe. Models up to 50 HP available.

Hammond Cyclone Duskolector. One of a wide line of Cyclone and Filter Types.

Hammond Backstands. 10 Air and Spring Tension Models to choose from.

Write for Catalog No. 60 showing America's most modern and complete line.

Hammond Machinery Builders INC.

1622 DOUGLAS AVENUE • KALAMAZOO, MICHIGAN

For more data circle **330** on Reader Service Card

Good Housekeeping Costs Less... Produces More Profit!

keep spray-booths clean with

"LIQUID ENVELOPE"

original, firesafe strip-coating

Spray it on. At clean-up time, strip it off, respray and you're back in production quickly. "LIQUID ENVELOPE" improves illumination, promotes fire-safety. Dry film will not burn or support combustion.

New Users: Order 5-gal. test-sample at drum price from your dealer.

BETTER FINISHES & COATINGS, INC.

268 Doremus Avenue, Newark 5, N. J. · 2014 East 15th St., Los Angeles 21, Calif.

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Abrasive & Supply Co., Detroit, Mich.
Air Engineering Corp., Baltimore, Md.
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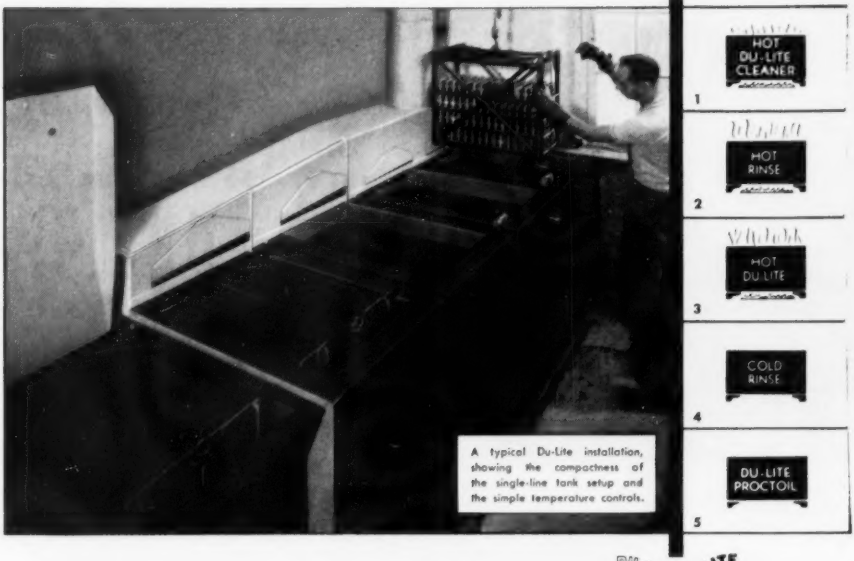
Tri-State Spray Equipment Co., Omaha, Neb.; Rock Island, Ill.

In Europe:
Jenson & Nicholson, Ltd., London, Eng.

For more data circle 331 on Reader Service Card

Du-Lite METAL FINISHING SPECIALISTS



A typical Du-Lite installation, showing the compactness of the single-line tank setup and the simple temperature controls.

DU-LITE STEEL COLORING PROCESS

Du-Lite's metal finishing line includes cleaners, strippers, blacking agents, wetting agents, passivating agents, rust preventatives, burnishing compounds etc. for any type of metal. Let Du-Lite solve your finishing problems. Complete Du-Lite service includes free processing of samples of your parts to demonstrate Du-Lite quality and economy, field engineers right near your plant to help you with your steel finishing riddles, and research on specific metal finishing problems.

The Du-Lite process requires five tanks, only three of which require heat, including one with a controlled temperature. The installation may, of course, be as elaborate as individual requirements demand. Setup can be tailored to handle the type and volume of the parts to be finished. Du-Lite engineers will be glad to assist you in planning the installation and securing the necessary equipment. The simplicity of the Du-Lite process may be readily appreciated from the following outline:

Visit us at the
44th Annual Convention
of the American Electroplaters Society

STEP 1 **Clean by immersion for five minutes in a good, hot soak cleaning bath. We recommend Du-Lite #29 cleaner with Titronne.**

STEP 2 **Rinse in hot water.**

STEP 3 **Immerse for five to fifteen minutes in Du-Lite bath at 290° to 300° F. (On certain types of heat treated steel normally requiring immersion for longer periods, time can be saved by immersing in a second bath for five to ten minutes at a higher temperature.)**

STEP 4 **Rinse thoroughly in cold water.**

STEP 5 **Immerse for two to five minutes in water displacing oil, remove, and drain. Du-Lite Proctoil will leave a protective oil film on the surface.**

Du-Lite

THE DU-LITE CHEMICAL CORPORATION • MIDDLETOWN, CONN.

For more data circle **332** on Reader Service Card

Only American CENTERLESS BUFFS give you 7 KEYS to GREATER OUTPUT!

7 TYPES SUIT EVERY JOB!
U.S. Pat. No. 2,582,506
Centerless BIAS CLOTH Buff
Centerless BIAS SISAL Buff
Centerless UNIT SISAL Buff
Centerless (Sewed) UNIT CLOTH Buff
Centerless (Unsewed) UNIT CLOTH Buff
Centerless OPEN BIAS SISAL Buff
Centerless PLEATED CLOTH Buff

Exclusive PRE-ASSEMBLY means FEWER Changeovers . . . FASTER Changeovers

Patented American "Centerless" Buffs *run cooler . . . last longer . . .* allow *faster machine speeds* without burning. *FEWER* changeovers!

Patented "Pre-Assembly"* permits making up complete buffing heads (up to 100 sections each) *in advance . . .* for *instant* replacement in a *single operation. FASTER* changeovers!

* U. S. Pat. No. 2,599,785

This is why

American CENTERLESS BUFFS

Guarantee 25% to 33⅓% more production

In most plants, the two biggest cost-items are Labor and Overhead (including Equipment) . . . almost 80% of total buffing costs! Revolutionary American "CENTERLESS" Buffs help you *reduce* these costly factors . . . *increase* production per man-hour and machine-hour!

27% more output on aluminum castings

33⅓% more output on brass

Certified Gains
WE CAN DUPLICATE IN YOUR PLANT
Ask for demonstration!

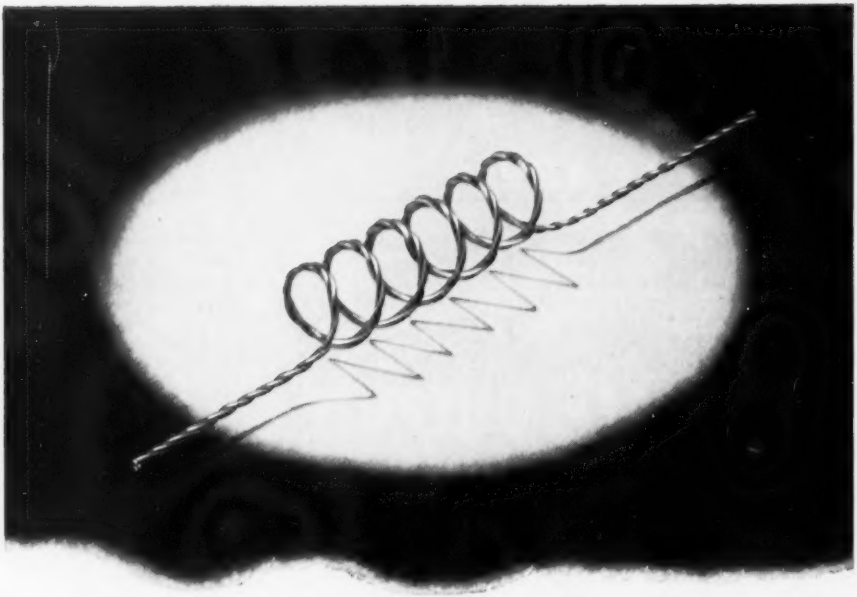
30% more output on copper

31% more output on steel

American Buff Company

2414 S. La Salle St., Chicago 16, Ill. • CAlumet 5-1607

For more data circle **333** on Reader Service Card



Made to last longer in VACUUM METALLIZING

Sylvania Tungsten Coils

In both batch and continuous vacuum metallizing operations, Sylvania tungsten heater source coils are designed to give you more shots per dollar.

Manufactured under exacting standards of uniformity and high metal purity, these Sylvania heater coils are produced expressly for vacuum metallizing service. Special tungsten wire is stranded and coiled to specifications established through Sylvania's own experience in the production of reflector lamps—as well as the experience of others. Sylvania offers you a wide selection of ready-made tungsten coils, in single or multiple strand. If you prefer to form your own heater source coils, there is a full range of diameters and types of Sylvania tungsten wire to choose from.

Write for the new booklet, "Sylvania Tungsten Coil Products."

Sylvania Electric Products Inc
Tungsten and Chemical Division
Towanda, Penna.

Tungsten • Molybdenum • Chemicals • Phosphors • Semiconductors

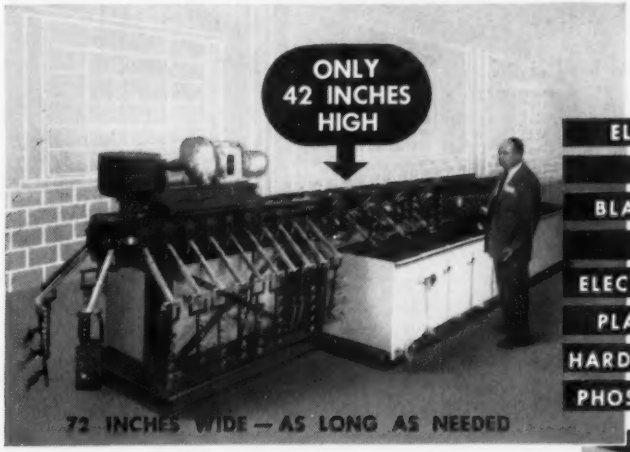
SYLVANIA

Lighting • Radio • Electronics • Television • Atomic Energy

For more data circle **334** on Reader Service Card

MEET "LITTLE STEVE," A NEW, SPACE SAVING, LOW COST AUTOMATIC PLATING AND IMMERSION PROCESSING MACHINE

Here's What "Little Steve" Can Do



- ELECTROPLATING
- ANODIZING
- BLACK JAPANNING
- ENAMELING
- ELECTROTYPE PLATING
- PLASTIC COATINGS
- HARD CHROME PLATING
- PHOSPHATE COATINGS

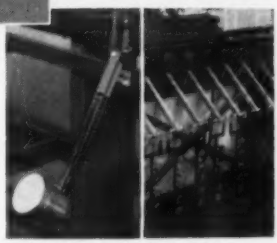
UP TO 40,000 PIECES PER DAY
540 RACKS PER HOUR

Yes, this new immersion processing machine by Stevens can process up to 40,000 pieces per day – and it has a variety of other uses too.

Ruggedly built "LITTLE STEVE," the big hit of the Metal Finishing Industry, can be obtained at a surprisingly low initial cost. It is ideal for large or small companies for it will fit many production cycles. It uses an arm as a rack or will take racks for small parts.

Being of small size it offers no floor space or load problems; involves low solution expense and means a small capital investment. It can be used easily as a laboratory testing machine.

For further information about "LITTLE STEVE" write for illustrated folder or call your local Stevens sales engineer.



A single part can be placed on each carrier arm as shown in the illustration above or racks of numerous parts can be used

If a larger production model is desired the "Sgt Steve" unit, using the same basic design, will provide the answer

BRANCHES IN PRINCIPAL CITIES

BRANCHES: BUFFALO • CLEVELAND • INDIANAPOLIS • NEW HAVEN

FOUNDRY FACINGS | GRINDING OPERATIONS | BLAST FINISHING | BARREL TUMBLING | METAL CLEANING | POLISHING & BUFFING | AUTOMATIC FINISHING | AUTOMATIC PLATING | METAL RECLAMATION

Metal Finishing equipment and supplies from castings or stampings to finished product

FREDERIC B. STEVENS
INCORPORATED
YOUR METAL FINISHING SUPERMARKET
DETROIT 16, MICHIGAN

For more data circle **335** on Reader Service Card

KOCH CONVEYORIZED SYSTEMS ARE USED TO finish almost everything

All over the world, goods for consumers and industry are moving through manufacturing operations that have been designed and built by Koch experts . . . specialists in surface preparation and paint application processes.

Write for the Koch Finishing System story . . . case histories of improved installations that have saved time, money and man power for others in your line of manufacture.

Master Metalcraftsmen Since 1873

GEORGE **KOCH** SONS, INC.

CHICAGO EVANSVILLE 4, INDIANA DETROIT

For more data circle **336** on Reader Service Card

Specify the Exclusive Sel-Rex

BRIGHT GOLD PROCESS

mirror-bright directly from the bath—twice as hard as conventional 24K Gold

Schick Incorporated, like hundreds of other leading manufacturers throughout the world, specifies Sel-Rex Bright Gold. The gleaming Sel-Rex Bright Gold plated shaver head on the new Ladies' Shick is typical of the beauty and performance of this precision shaving instrument.

More dense and twice as hard as conventional 24K Gold, Sel-Rex Bright Gold has demonstrated 40% *greater resistance* to wear and abrasion. For *functional* as well as decorative applications, Sel-Rex Bright Gold *must* give better service because the main objections to ordinary gold plate are completely eliminated.

The remarkable thing is that you get the beauty and desirable metallurgical properties of 24K Gold, plus the many exclusive advantages of a Sel-Rex Process, at very modest cost. Actual tests have shown that *one gram of* Sel-Rex Bright Gold *does the job of two grams* of conventional 24K Gold, in specification plating. See for yourself—send for free technical data and literature today.

Precious Metals Division

SEL-REX CORPORATION

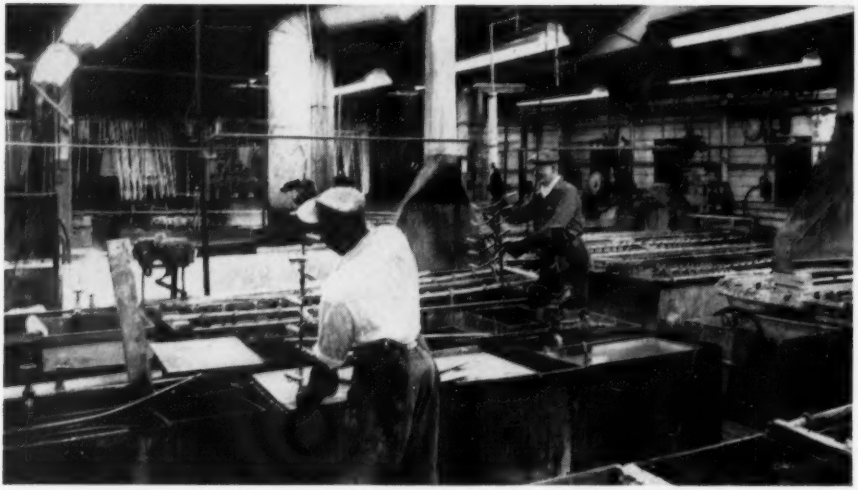
PF-6, NUTLEY 10, N. J.

Sel-Rex®

Manufacturers of Exclusive Precious Metals Processes, Metallic Power Rectifiers, Airborne Power Equipment, Liquid Clarification Filters, Metal Finishing Equipments and Supplies.
Offices: Detroit—Chicago—Los Angeles

For more data circle **337** on Reader Service Card

BUSY CLEVELAND JOB PLATER.....



AT this large plating shop, Cowles cleaners (QC, FE, KW, WM, AA and NS) are being used with great success to speed up and improve cleaning operations before plating in these tanks. It has been the experience of this shop (Metal Finishers, Inc.) that one or another of these Cowles cleaners takes care of every job that comes along. And to quote Mr. Ridenour of Metal Finishers, "That's proof of Cowles' reliability, because we get those tough plating and cleaning jobs that many companies won't handle." — For specific information on cleaners for your shop, write Cowles Chemical Company, 7016 Euclid Ave., Cleveland 3, Ohio.

For more data circle 338 on Reader Service Card

Vol. 21, No. 9
JUNE, 1957

Montreal Welcomes the A. E. S.

For the first time in over twenty-five years, the Montreal Branch has the pleasure of playing host to the annual A.E.S. Convention. It is our happy privilege to extend a sincere and cordial welcome to you, your family and friends.

Our educational chairman and the Editorial Board have developed a well-rounded Educational Program for you. Two objectives have been paramount in their planning: first, to present a program encompassing discussions of current findings and investigations in our rapidly changing industry; second, to maintain the high standard of quality established by papers presented at previous A.E.S. conventions.

In addition to the more formal part of the educational program, a number of plant trips to representative finishing installations in the Montreal area have been planned. The trips will afford an opportunity to observe finishing methods used by plants in this area.

Many social functions have been planned to provide an entertaining program. It is the sincere hope of the entire committee that you will participate in them and find them enjoyable. We hope you will call on our committee for anything we can do to make your visit to Montreal profitable and enjoyable.

G. Ross Davidson

Chairman,
45th Annual A.E.S. Convention

44th ANNUAL CONVENTION

American Electroplaters' Society

JUNE 16-20—SHERATON-MOUNT ROYAL HOTEL

MONTREAL, QUEBEC, CANADA

Sheraton-Mount Royal Hotel, Convention Headquarters

Chalet atop Mount Royal, overlooking Montreal.

The University of Montreal

Brother Andre's Shrine

The Laurentian Hotel

Registration Information

Convention registration at the Sheraton-Mount Royal Hotel will be held as follows:

Sunday, June 16.....10:00 A.M. to 9:00 P.M., Ballroom
Monday, June 17..8:30 A.M. to 6:00 P.M., Ballroom; 6:00 P.M. to 9:00 P.M., 9th floor lobby.
Tuesday, June 18.....9:00 A.M. to 9:00 P.M., 9th floor lobby.
Wednesday, June 19...9:00 A.M. to 9:00 P.M., 9th floor lobby.
Thursday, June 20...9:00 A.M. to 6:00 P.M., 9th floor lobby

The registration fee of $20.00 per person provides each registrant with a book of tickets covering all events on the program.
Tickets for the Annual Banquet, to be held on Thursday, June 20, must be obtained in advance by exchanging the registration book ticket for a banquet ticket bearing a table number. This can be done at the Banquet Reservation Desk, 9th floor lobby.

A. E. S. Officers...

Dr. Samuel Heiman
President

Francis T. Eddy
First Vice President

H. E. Head
Second Vice President

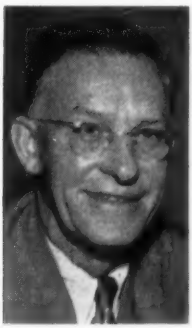
Ralph D. Wysong
Third Vice President

Clyde Kelly
Past President

John P. Nichols
Executive Secretary

Convention Committee

General Chairman
G. Ross Davidson
Canadian Hanson & Van Winkle Co., Ltd.



Vice Chairman
Charles M. Douglas
Douglas Chemical Co., Ltd.

Educational Program: P. M. Coady, *Rediweld (Canada) Ltd.*
Convention Registration: William Feeley, *John H. Feeley & Sons, Ltd.*
Banquet: Bert T. Kelly, *Nicromatic, Ltd.*
Finance: B. Mendels, *Empire Electroplating Works, Ltd.*
Plant Visitation: Mendel Cohen, *Northern Electric Co., Ltd.*
Entertainment: J. J. Carrique, *Alloycraft, Ltd.*
Transportation & Outing: Charles M. Douglas, *Douglas Chemical Co.*
Hotel: Stanley A. Frost, *Canadian Hanson & Van Winkle Co., Ltd.*
Printing: John T. Reisenburg, Jr., *Lea Products Co.*
Publicity: John T. Reisenburg, Sr., *Lea Products Co.*
Program: William Glover, *Canadian Pratt & Whitney Aircraft, Ltd.*
Ladies: Mrs. G. R. Davidson.

Convention

Sunday, June 16

9:30 A.M. —Annual Meeting, National Association of Metal Finishers. Salons C, D, E.
10:00 A.M. —A.E.S. Executive Board Meeting. Salon I.
10:45 A.M. —Board Meeting, National Association of Metal Finishers. Salons C, D, E.
2:00 P.M. —Metal Finishing Suppliers' Association, Inc., Trustees' Meeting.
8:30 P.M. —A.E.S. Get-Together Party. Champlain Room. Admission by registration book ticket.

Monday, June 17

10:00 A.M. —Opening Session and Business Meeting. Champlain Room.
11:00 A.M. —A.E.S. Business Meeting. Champlain Room.
12:00 Noon —M.F.S.A. Luncheon and Annual Business Meeting. Normandie Room.
12:00 Noon —Branch Secretaries' Luncheon. Salon B.
12:00 Noon —Ladies' Luncheon and Sight-Seeing Tour. Host, Montreal Branch. Admission by registration book ticket.
12:30 P.M. —Speakers' Luncheon. Salon A.
2:00 P.M. —N.A.M.F. Seminar. Sheraton Hall.
2:30 P.M. —Editorial Board Meeting. Salon F.
2:30 P.M. —First Educational Session. Champlain Room.
6:00 P.M. —N.A.M.F. Cocktail Party and Dinner. Sheraton Hall.
6:00 P.M. —Chandeysson Electric Company Cocktail Hour. Salon F.
6:30 P.M. —Past Presidents' Dinner. Salon B.
8:30 P.M. —Open House. Sponsored by M.F.S.A. Dancing and Buffet Luncheon. Champlain Room and Ballroom. Admission by registration book ticket.

Tuesday, June 18

8:00 A.M. —Speakers' Breakfast. Salon A.
8:00 A.M. —Research Committee Breakfast. Salon D.
9:00 A.M. —Public Relations Committee Meeting. Salon C.
9:30 A.M. —Second Educational Session. Ballroom.
9:30 A.M. —Third Educational Session. Champlain Room.
11:00 A.M. —M.F.S.A. Golf Tournament, St. Hyacinth Golf Course.
11:30 A.M. —Ladies' Luncheon. Sponsored by Oakite Products, Inc. David X. Clarin, host. Vaudreuil Inn.
12:00 Noon —Branch Librarians' Luncheon. Salon L.

Timetable

12:30 P.M. —Speakers' Luncheon. Salon A.
1:00 P.M. —Plant Visits. No. 1, Canadian General Electric Co.; No. 2, Northern Electric Co., Ltd. Make arrangements at Special Events Desk, Registration area.
2:00 P.M. —Fourth Educational Session. Champlain Room.
2:00 P.M. —Research Committee Meeting. Salon J.
4:00-8:00 P.M.—International Nickel Company Cocktail Party. Salon L.
5:30-9:00 P.M.—Federated Metals Div. Reception. Ballroom.
6:00-7:30 P.M.—Canadian Hanson & Van Winkle Co., Ltd. Cocktail Party. Champlain Room.
7:30-9:00 P.M.—Technical Motion Picture. Cartier Room.
7:30-9:00 P.M.—Ladies' Plato Party. Prizes donated by supplier companies. Mrs. Joan Wiarda, hostess. Sheraton Hall.

Wednesday, June 19

8:00 A.M. —Speakers' Breakfast. Salon A.
8:00 A.M. —Michigan State Alumni Breakfast. Salon B.
9:00 A.M. —Fifth Educational Session. Champlain Room.
8:30 A.M. —R. O. Hull & Co., Inc., Breakfast Meeting. Normandie Room.
11:00 A.M. —Laurentian Trip (Outing). Admission by registration book ticket. Buses outside hotel.
5:30 P.M. —DuPont Reception. Salon B or Cartier Terrace.
8:45 P.M. —Floor Show and Dance. Ballroom and Champlain Room.

Thursday, June 20

8:00 A.M.—Speakers' Breakfast. Salon A.
9:30 A.M. —Sixth Educational Session. Champlain Room.
9:30 A.M. —A.E.S. Business Meeting. Sheraton Hall.
11:30 A.M. —Ladies' Luncheon, sponsored by Udylite Corporation, Dr. R. B. Saltonstall, host. Helene de Champlain Restaurant, St. Helens Island.
1:00 P.M. —Plant visits. No. 3, Canadian Pratt & Whitney Aircraft Co., Ltd.; No. 4, Canadair, Ltd. Make arrangements at Special Events Desk, Registration Area.
5:00 P.M. —Hanson-Van Winkle-Munning Company Cocktail Party. Sheraton Hall.
7:00 P.M. —Annual Banquet and Dance. Ballroom and Champlain Room.
11:00 P.M. —Udylite Company Closing Party. Sheraton Hall.

Ladies' Program

Mrs. G. R. Davidson
Ladies' Committee
Chairman

Sunday, June 16

8:30 P.M. —A.E.S. Get-Together Party. Champlain Room. Admission by registration book ticket.

Monday, June 17

10:00 A.M. —Opening Session. Welcoming address, special speaker, Superintendent Brakefield-Moore, Royal Canadian Mounted Police. Champlain Room.

12:00 Noon—Ladies' Luncheon and Sight-Seeing Tour. Host, Montreal Branch. Admission by registration book ticket.

8:30 P.M. —Open House. Sponsored by Metal Finishing Suppliers' Association, Inc. Refreshments and dancing. Buffet served at 10:30 P.M. Champlain Room and Ballroom. Admission by registration book ticket.

Tuesday, June 18

11:30 A.M. —Ladies' Luncheon. Sponsored by Oakite Products, Inc., David X. Clarin, host. Vaudreuil Inn.

7:30-9:00 P.M.—Ladies' Plato Party. Prizes donated by supplier companies. Mrs. Joan Wiarda, hostess.

Wednesday, June 19

11:30 A.M. —Buses begin loading for Laurentian Outing and Buffet Luncheon. Admission by registration book ticket.

8:45 P.M. —Floor show and dance. Ballroom and Champlain Room. Admission by ticket.

Thursday, June 20

11:30 A.M. —Ladies' Luncheon, Sponsored by Udylite Corporation, Dr. R. B. Saltonstall, host. Helene de Champlain Restaurant, St. Helen's Island.

7:00 P.M. —Annual Banquet and Dance. Champlain Room.

Metal Finishing Suppliers' Association Program

J. J. Duffy, Jr.
President, M.F.S.A.

J. J. Carrique
M.F.S.A. Liaison
Representative

The Metal Finishing Suppliers' Association, Inc., sponsors several outstanding social events at the A.E.S. Convention. In addition, its members use this opportunity to transact business of the organization.

Composed of manufacturers and distributors who serve the plating industry, M.F.S.A. performs many of the same functions as its predecessor, the International Fellowship Club; besides being a fellowship group, M.F.S.A. serves as a center for exchange of information and services among its members. M.F.S.A. headquarters this year will be in the Sheraton-Mount Royal Hotel.

Social Events *sponsored by the M.F.S.A. include an open house and a golf party. The M.F.S.A. Open House will be held on Monday evening at the Sheraton-Mount Royal Hotel, beginning at 9:00 P.M. All registrants are guests of the M.F.S.A. at this event. The evening is highlighted by dancing, awards and a buffet at 10:30 P.M.*

The M.F.S.A. Golf Tournament will be held on Wednesday, June 19, at St. Hyacinth Golf Course. A hot lunch will be served. Prizes will be awarded to those with the lowest scores as well as those with the most luck.

Business conducted by the M.F.S.A. *at the Convention begins with a meeting of the Trustees at the Sheraton-Mount Royal Hotel*

on Sunday afternoon, June 16, at 2:00 P.M. The Annual Meeting of The Association will be a luncheon gathering at 12:00 Noon on Monday, June 17, in the Normandie Room of The Sheraton-Mount Royal Hotel. During this meeting policies of the association will be discussed and new officers will be installed.
Jeff Carrique, president of Alloycraft, Ltd., Montreal, has made arrangements for M.F.S.A. activities at the 45th Annual Convention.

Board of Trustees, Metal Finishing Suppliers' Association, Inc.

J. J. Duffy, Jr., president, Pennsalt Chemicals Corp., Philadelphia, Pa.

M. M. Beckwith, first vice president, Harshaw Chemical Co., Cleveland, Ohio

E. W. Couch, second vice president, The Lea Manufacturing Co., Waterbury, Conn.

Raymond F. Ledford, third vice president, Industrial Filter & Pump Mfg. Co., Chicago, Ill.

T. A. Trumbour, treasurer, "Metal Finishing", Westwood, N. J.

Herman J. Struckhoff, past president, Laco Engineering and Sales, Inc., Los Angeles, Calif.

John A. Bauer, Hanson-Van Winkle-Munning Co., Matawan, N. J.

Sherman M. Goble, Jr., Federated Metals Div., American Smelting & Refining Co., New York, N. Y.

Hugh D. McLeese, Metal & Thermit Corporation, New York, N. Y.

George A. Stutz, The Stutz Co., Chicago, Ill.

A. P. Munning, executive secretary, Munning & Munning, Inc., Newark, New Jersey.

Where to Dine

Au Lutin Qui Bouffe. 753 St. Gregoire at St. Hubert St. An excellent French restaurant with an unusual atmosphere. Delicious food prepared to order, including charcoal-broiled steaks, home-made desserts and French pastries. Choice wines, beer and liquors.

Cafe Martin. 1521 Mountain St., near Sherbrooke. Tasty food, attractive dining rooms, air conditioned. French cuisine. Cocktail lounge and bar.

Chez Ernest. 1500 Drummond St. A good French restaurant. A la carte at all times. Cocktail lounge and bar.

Chic-N-Coop Restaurant. 1196 Ste. Catherine St. W. Chicken dishes are the house specialty. Cocktail lounge.

Desjardin's Sea Foods. 1175 Mackay St. A good restaurant for those who like sea food. Outdoor dining. Beautiful cocktail lounge and bar.

Drury's English Inn. 1082 Osborne St. One of Montreal's oldest and finest restaurants, established in 1888. Good food served in Old English atmosphere. Steaks, beef and kidney pie, roast and corned beef, finan haddie and sea food. Fine wines and imported English whiskey.

La Maisonette Carol. 2045 Peel St. An air-conditioned restaurant featuring French cuisine.

La Tour Eiffel. 1422 Stanley St. Good French food. Cocktail bar.

Le Petit Trianon. 2012 Peel St. A varied menu of well-prepared food, specializing in French cuisine. Cocktails served.

Ruby Foo's. Five miles north on Laurentian Highway (Rts. 8 & 11A) at 7815 Decarie Blvd. Fine Chinese and American food. Three cocktail lounges. Entertainment.

Windsor Steak House. 1194 Peel St. House specialty, charcoal-broiled steaks. Cocktails.

Facts About Montreal

Montreal is on an island 30 miles long and seven to ten miles wide. The city proper occupies about one-half the island. It is the second largest French-speaking city in the world—second only to Paris.
Montreal is on the St. Lawrence River, approximately 1000 miles from the Atlantic Ocean.

Montreal has a mountain rising in the center of the city, and it is well equipped for Winter sports. Facilities for Summer sports are also excellent. Tennis, hiking, swimming, boating, fishing and other water sports are some of the more popular activities. Spectator sports include baseball, horse racing, wrestling, boxing, soccer, stock-car racing, bicycle racing, boat races.

Industrial Montreal has an abundance of hydro-electric power. It is an important export and shipping center. The city's more than 4500 industries include one of the largest and most modernly equipped oil refineries on the continent.

Visitor attractions include the Lookout atop Mount Royal, a caleche ride, Brother Andre's Shrine, St. Helen's Island, the Wax Museum, the Botanical Gardens, the Harbor and the Laurentian Mountains.

Educational Program

P. M. Coady
Educational Chairman

FIRST SESSION
Monday, June 17, 2:30 P.M.

Cleveland F. Nixon
General Motors Corporation, Detroit, Mich.
Session Chairman

1—*Leveling in Cyanide Copper Baths: A Further Study.* By Barnet D. Ostrow, and Frederick I. Nobel, Lea-Ronal, Inc., Jamaica, New York.

A continuation of the study presented at the A.E.S. 41st Annual Convention. Disadvantages of the PR cycle as a leveling method are discussed. The authors show that with the standard cyanide copper baths only zero or negative leveling can be accomplished. Evidence is presented to show that positive leveling can be obtained with a new type of cyanide copper bath. Such leveling is said to be equivalent to that obtained from acid copper or nickel baths with leveling characteristics.

2—*Bright and Semi-Bright Crack-Free Chromium.* By Dr. E. J. Seyb, A. A. Johnson, and A. C. Tulumello, Metal & Thermit Corporation, Rahway, N. J.

Unusual properties of Crack-Free Chromium deposits are described. Application in which this type of chromium plating gives exceptional

results are discussed. The authors give statistics on the corrosion resistance, undercoat requirements and wear resistance of these deposits.

3—*Electroplating on Nickel and Nickel Alloys.* By W. W. Sellers and C. B. Sanborn, International Nickel Co., Inc., New York, N .Y.

The authors discuss methods of electroplating nickel on alloys such as 30-60 per cent nickel alloys, Invar, Durinickel, Ni-Resist, Nionel and so on. They describe mechanical preparation and cleaning procedures for nickel and nickel alloys. A table shows methods for treating these alloys to improve adhesion of the nickel coating.

4—*Corrosion Resistance of Tin and Tin-Alloy Electrodeposits.* By Dr. Frederick A. Lowenheim, Metal & Thermit Corporation, Rahway, N. J.

The author reviews the literature and presents new data on the corrosion resistance of electrodeposited tin and tin alloys.

SECOND SESSION
Tuesday, June 18, 9:30 A.M.

Walter L. Pinner
Houdaille Industries, Inc., Detroit, Mich.
Session Chairman

5—*The Effects of Plating on High-Tensile-Strength Steels.* By Dr. Walter Beck, U. S. Naval Base, Philadelphia, Pa.

The author uses a C-Ring Specimen to test the stresses caused by plating on high-tensile-strength steels. He discusses the extent of stress cracking obtained in various electroplating baths.

6—*The Influence of Physical Metallurgy and Mechanical Processing of the Basis Metal on Electroplating. Part IV: The Effect of Different Ferrous Metals on the Performance of a Watts Nickel Deposit.* By Dr. M. H. Jones, Chih-Yen Lu and J. Zajdowski, Ontario Research Foundation, Toronto, Canada.

A report on research conducted to determine the durability of

0.0005- and 0.001-inch deposits of Watts nickel on 12 different ferrous-metal alloys. A statistical analysis of corrosion data reveals significant differences in the performance of these deposits over different basis metals.

7—*Analytical Methods for Detecting Trace Quantities of Cyanide Compounds in the Plating Room Effluent.* By W. F. Stevens and L. E. Lancy, Lancy Laboratories, Ellwood City, Pa.

A simple and fast method for detecting trace quantities of cyanide compounds in plating room wastes is described. Quantitative estimation is possible by repeating the test on samples of various sizes. A spot test described by the authors can detect 1 p.p.m. of cyanide.

8—*Accelerators and their Function in Phosphatizing Solutions.* By Lloyd O. Gilbert, Rock Island Arsenal, Rock Island, Ill.

The author examines the complex nature of "accelerators" (usually nitrate or nitrite ions) and discloses a theory that explains the nature of their reaction in phosphatizing solutions. Other factors that serve to accelerate the formation of phosphate coatings are outlined and illustrations are given.

THIRD SESSION
Tuesday, June 18, 9:30 A.M.

A. C. West, Canadian Hanson & Van Winkle Co., Montreal, Canada, Session Chairman

9—*A New Look in Plating-Room Power.* By C. F. Ivins, Jr., Hanson Van Winkle-Munning Co., Matawan, N. J.

The author reviews sources of direct current for plating. He discusses motor generators as well as rectifiers and points out the advantages, disadvantages and limitations of each source of power.

10—*Latest Developments in Electroplating with Ultrasonics.* By Stanley R. Rich, General Ultrasonics Co., Hartford, Conn.

The application of low-frequency ultrasonics to electroplating is

examined. Results of using ultrasonics in copper-nickel-chromium plating are presented. The author will demonstrate some of his methods and typical parts plated with the aid of ultrasonics will be exhibited.

11—*Corrosion and Materials of Construction in the Plating Room.* By T. J. V. Cudbird, Canadian Hanson & Van Winkle Co., Ltd., Montreal, Canada.

This paper is divided into five sections, each of which treats a portion of the subject. The sections are as follows: The Mechanism of Metallic Corrosion; The Common Metallics — Applications and Limitations; Rubbers and Vinyls; Plastics; Plating Room Floors.

12—*The Future of Plastics in Electroplating Plants.* By Harold Silman, Electrochemical Engineering Co., Ltd., Surrey, England.

The author describes various plastics suitable for use in constructing electroplating plants. He notes that while the electroplating industry has been cautious in adopting plastics for prevention of corrosion, it is here that they are most useful, because corrosion problems in plating plants are accentuated by the presence of stray currents.

FOURTH SESSION
Tuesday, June 18, 2:30 P.M.

Dr. H. L. Kellner
Lea Manufacturing Co., Waterbury, Conn.
Session Chairman

13—*A Study of Application Techniques in the Use of Liquid Buffing Compounds.* By E. T. Candee and S. L. Henn, Lea Manufacturing Co., Waterbury, Conn.

The authors disclose the results of spraying liquid buffing compound onto ventilated cloth buffing wheels under various controlled conditions in an effort to improve efficiency and economy. In a series of tests, the authors noted the effects of varying the wheel speed, distance of the spray gun from the wheel, atomizing pressure, amount of compound applied and rate of application.

14—*Sisal Story.* By Howard J. McAleer, Formax Manufacturing Corp., Detroit, Mich.

Woven sisal buffing wheels are relatively new buffing tools that combine strength and resiliency with natural abrading and grease-absorbing characteristics. The author discusses the various types of buffing wheel construction that are available, the chemical treatments that can be used to improve performance of sisal buffs, and suggested applications for this type of buff.

15—*Barrel Plating.* A paper submitted by the Chicago Branch, A.E.S., and presented by the branch secretary, Paul Glab, Northwestern Plating Works, Chicago, Ill.

A discussion of the advantages and disadvantages of various types of plating barrels. Includes data on optimum load size, methods of loading and unloading, preparation of work, type of finish produced, rinsing and drying, and post-plate treatments.

16—*Industrial Chromium Plating.* A film presented by Arthur W. Logozzo, Nutmeg Chrome Corporation, West Hartford, Conn.

FIFTH SESSION
Wednesday, June 19, 9:00 A.M.

Dr. Abner Brenner
National Bureau of Standards,
Washington, D. C.
Session Chairman

17—*Further Studies in Nickel-Iron Alloy Electrodeposits.* By I. W. Wolf, General Electric Co., Electronics Div., Syracuse, N. Y.

The effect of current density and plate thickness on the magnetic properties of a 79 per cent nickel, 21 per cent iron alloy are reported. The effectiveness of this material as a protective coating was investigated. The author discusses several applications of this material.

18—*Iridium Plating and its High-Temperature-Oxidation Resistance.* By J. C. Withers and P. E. Ritt, Melpar, Inc., Falls Church, Virginia.

The authors disclose a relatively easy method of depositing iridium, giving the conditions that produce the best deposits. The paper includes methods for plating iridium on molybdenum and stainless steels.

19—*Surface-Catalyzed Reduction of Copper.* By Allen E. Cahill, General Electric Co., Electronics Div., Syracuse, N. Y.

This paper describes deposition of copper from an alkaline cupric tartrate-formaldehyde solution on an electroless nickel deposit. Film thicknesses up to 0.0015 inch have been achieved.

SIXTH SESSION
Thursday, June 20, 9:30 A.M.

Dr. Ralph A. Schaefer
Clevite Corporation, Cleveland, Ohio
Session Chairman

20—*The Sealing of Anodic Aluminum Oxide Films.* By Dr. Roy C. Spooner, Aluminum Laboratories, Ltd.

An investigation of sealing methods for aluminum oxide films produced in sulfuric acid anodizing baths. The experimental work included water sealing the films at various pH values and for varying lengths of time; and sealing in steam, dichromate, nickel acetate and silicone solutions. Data on the effect of anodizing time and electrolyte temperature are presented. Discussions of the composition of the sealed anodic coating and of the sealing mechanism are included.

21—*A Study of the Effects of Various Electrolytes on the Anodic Film.* By J. M. Andrus, Croname, Inc., Chicago, Ill.

An investigation of electrolytes not normally used for anodizing aluminum. Data is given on the effect of current density, bath temperature and voltage on the rate of dye absorption and hardness.

22—*Impurities in Chemical Bright Dip Solutions for Aluminum —Their Effect and Removal.* By R. F. Ledford, Industrial Filter & Pump Mfg. Co., Chicago, Ill.

An investigation of the effects of and methods for removal of the following contaminants from chemical bright dip solutions: calcium, magnesium, silicates, phosphates, carbonates, soils and soaps, polishing and buffing compounds.

23—*The Role of Chromate Treatments in the Finishing of Aluminum.* By Walter E. Pocock, Allied Research Products, Inc., Baltimore, Md.

A brief history of chromate treatments and their relation to other finishes is followed by a discussion of the formation, function and applications of chromate films on aluminum.

Annual Meeting

National Association

of Metal Finishers

Sunday and Monday, June 16-17
Sheraton-Mount Royal Hotel, Montreal, Canada

John A. Palik, Jr.
President of N.A.M.F.

Harold W. Baker
General Chairman,
1957 N.A.M.F.
Annual Meeting

The National Association of Metal Finishers, an organization of job-shop owners and executives, holds its annual meeting concurrently with the A.E.S. Convention. N.A.M.F. activities this year are highlighted by the annual business meeting, election of officers, the Sixth Annual Management Seminar, and the N.A.M.F. Annual Banquet.

Sunday, June 16

9:00 A.M.-9:00 P.M. —Registration, 9th Floor Ballroom.
9:30 A.M.-12:00 Noon—Annual Business Meeting of Membership, Salons C, D, E.
10:45 A.M.-4:30 P.M. —Annual Meeting, Board of Directors.

Monday, June 17

8:30 A.M.-5:30 P.M. —Registration, N.A.M.F. Display Booth.
9:30 A.M.-12:00 Noon—Public Relations — Membership Committee Meeting, Executive Secretary's Suite.
1:30 P.M.-4:30 P.M. —Annual Educational Session: Roundtable discussion of *Determining Costs in Certain Still, Barrel and Decorative Plating Work*. A. T. Leonard, Superior Plating Co., Minneapolis, Minn., Moderator. Panel members include: Glenn H. Friedt, Jr., United Platers, Inc., Detroit, Mich.; Tony Stabile, Associated Plating Co., Inc., Los Angeles, Calif.; Henry J. Siegel, Siegel-Robert Plating Co., St. Louis, Mo.; Lawrence J. Hay, Plating Service Co., Chicago, Ill.; Steve Palisin, Empire Plating Co., Cleveland, Ohio; and Mariano Ranno, Imperial Plating Co., Brooklyn, N. Y.

Arrangements for this year's annual meeting are under the direction of Harold W. Baker, Electro Galvanizing Co., Chicago, Ill.

N. A. M. F. Officers

President: John A. Palik, Jr., National Plating Corp., Cleveland, Ohio.
First Vice President: J. Robert Greenwell, Reliable Plating Co., Chicago, Illinois.
Second Vice President: W. B. Knight, Knight Plating Co., Detroit, Mich.
Secretary-Treasurer: Frank Kaiser, Long Island Mechanical Plating Co., Long Island, N. Y.
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Executive Secretary: P. Peter Kovatis, Cedar Grove, N. J.

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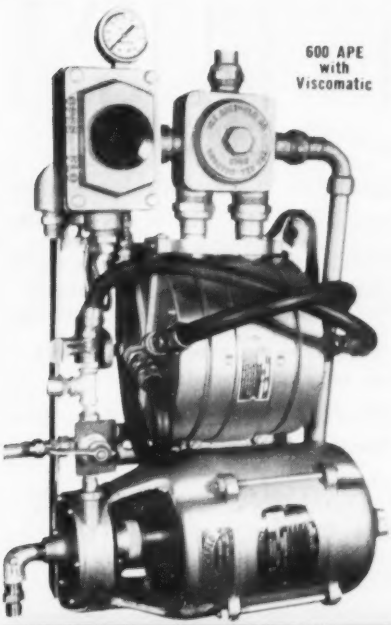

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SHELL

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NEW BOOKS

BARREL FINISHING EQUIPMENT. A 20-page general catalog of Globe Barrel Finishing equipment and supplies includes information on abrasive and burnishing media and compounds. Also gives important facts about the "6 Variables" in barrel finishing. Includes before and after photographs of parts which have had deburring, polishing, burnishing, radii forming, rubber deflashing and descaling. **Globe Division of Casalbi Company,** Box 411, Jackson, Michigan.

★ ★ ★

INDUSTRIAL SPRAY NOZZLES. Binks 5600 Nozzle Catalog. Wide variety of information on over 100 nozzles of all kinds and sizes.

Tables show nozzle capacities at varying pressures, spray angles, nozzle dimensions and other data needed for specifications.

Special chapters cover nozzles for washing, bonderizing, roof cooling, spray ponds and humidifying.

Supplementary tables supply such information as pressure drops for water in steel pipes, spray cone diameters at various distances from the nozzle orifice, and steam tables for steam condenser, spray pond and cooling tower work.

For a copy of nozzle catalog 5600, write to **Binks Manufacturing Co.,** 3118-40 Carroll Ave., Chicago 12, Ill.

The Development and Evaluation of Paint Remover Used by the United States Air Force. By Sam Collis, Wright Air Development Center, January, 1955. Published by OTS, U. S. Department of Commerce, Washington 25, D. C. 34 pages. Price, $1.00.

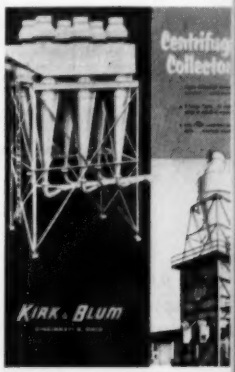
Paint and lacquer remover formulations containing solvents other than the strategic methylene chloride are evaluated by Air Force study.

Materials were investigated for use as surface active agents, activating agents, thickeners, and evaporation retardants. The formulations included commonly available ingredients, many of which were evaluated for the removal of paint and lacquer coatings from metal.

The best experimental formulation developed was nitromethane-toluene-ethanol solvent mixture with a dibutyl amine—monoisopropyl amine—adipic acid thickener, a surface active agent, and a paraffin evaporation retardant. However, it was slow in removing paint and showed signs of deterioration after one month storage.

★ ★ ★

CENTRIFUGAL DUST COLLECTORS. An illustrated folder on centrifugal collectors is available from **The Kirk & Blum Manufacturing Co.,** 3116 Forrer St., Cincinnati 9, Ohio. It describes in detail two new types, and explains the wide range of industrial applications for each in air cleaning and dust collection through centrifugal force.



Complete specifications for the 41 sizes of Kirk & Blum centrifugal collectors are included, as well as dimensional drawings. Valuable information on collector selection is presented.

For more data on advertisement on opposite page circle **342** on Reader Service Card

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To keep your costs low, H-VW-M design and production engineers have concentrated on four standard new-type Powertrons–all of which have a range of 44 voltage adjustments.

The four rated outputs–750, 1500, 2500 and 5000 amperes, all in the 2 to 6, 7 to 12 volt range–are the ones most often used for still tank and barrel plating, including many automatic plating installations.

Check the outstanding advantages and features of the new Powertron rectifiers. See how these unit power packs can help you to more profitable plating.

SPECIAL ADVANTAGES

- New low price
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- Magnetically balanced germanium junctions
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- Complete corrosion-proof protection
- Compact, space-saving cabinet design

POWERTRON by H-VW-M

–completely new series of germanium rectifiers. These new power-packs supplement H-VW-M's line of germanium rectifiers–equipment that has proved unusually successful in plating plants across America.

Powertron incorporates this time-tested performance, long life and efficiency into a single unit. With simple and dependable controls, Powertron–in the designed ratings and range –more than meets the demands of cost-minded plating shops.

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1500 ampere Powertron

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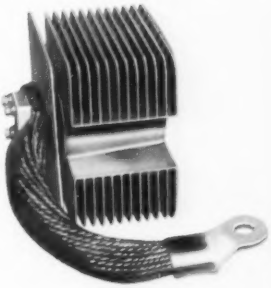
Diode



H-VW-M
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Diode

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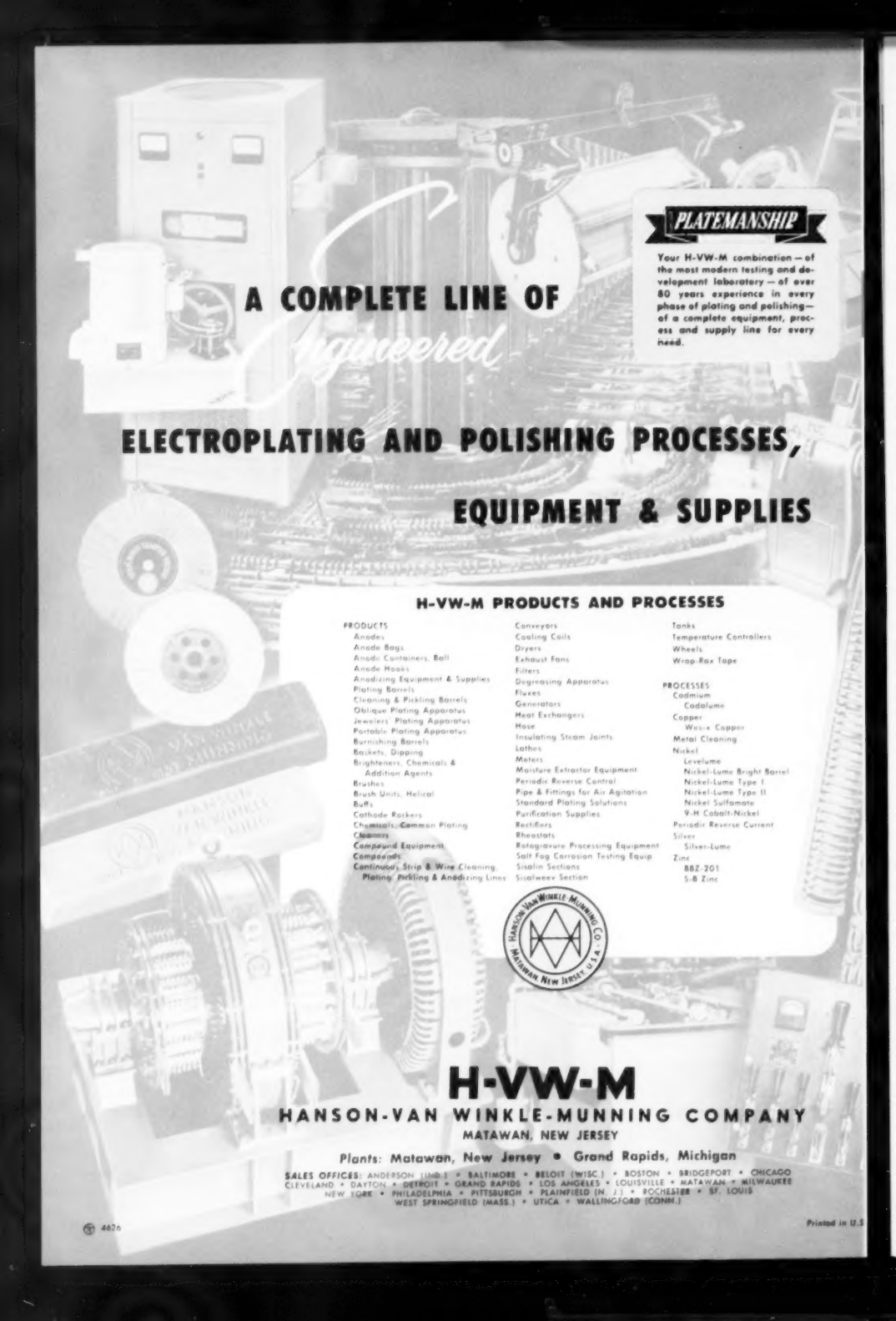
750 amperes	2-12 volts	42" h x 22" w x 20" d
1500 amperes	2-12 volts	60" h x 24" w x 24" d
2500 amperes	2-12 volts	66" h x 33" w x 24" d
5000 amperes*	2-12 volts	68" h x 43" w x 43" d

*can be supplied with motor operated tap switch controlled by remote push-button.



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- Cathode Rockers
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- Dryers
- Exhaust Fans
- Filters
- Degreasing Apparatus
- Fluxes
- Generators
- Heat Exchangers
- Hose
- Insulating Steam Joints
- Lathes
- Meters
- Moisture Extractor Equipment
- Periodic Reverse Control
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  - Nickel-Lume Type I
  - Nickel-Lume Type II
  - Nickel Sulfamate
  - 9-H Cobalt-Nickel
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- Silver
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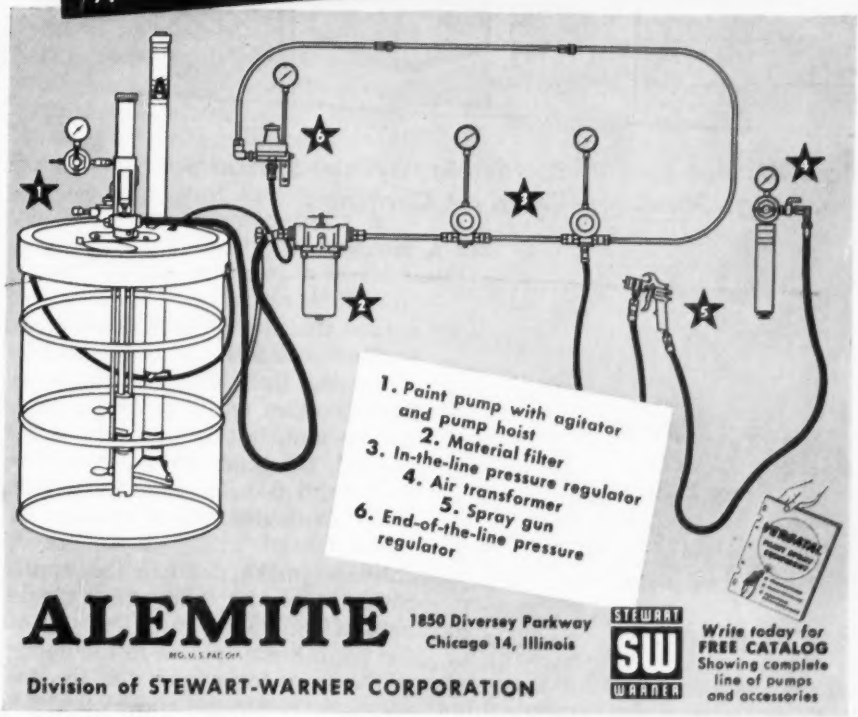
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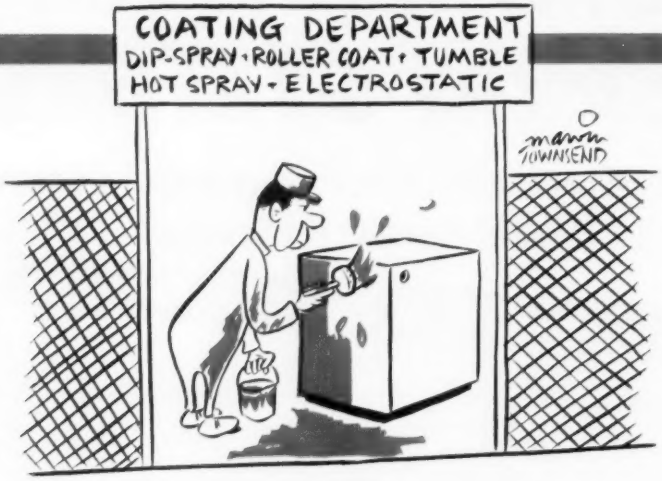
A Survey of Paint



Part III: Hot Spray; Airless Spraying; Steam Spray Painting; Spraying Catalyst Coatings

By EZRA A. BLOUNT
Editor

products feature finishing

Hot Spray Painting

When paint is sprayed with air as the atomizing medium, the paint must be reduced with various thinners so that the sprayed film will be uniformly smooth and not too thick. Naturally, these thinners evaporate from the film and represent a loss. As the temperature of paint is increased, the paint has a lower viscosity and flows more readily. Hot spray methods take advantage of the potential saving in thinner, and also make possible the application of heavier coats with a single pass of the spray gun. The use of the paint heater places in the hands of the paint formulator and the finishing foreman another tool which

can be used to cut costs, produce better finishes, or both.

Paint heaters in a number of different designs are available. One type (Fig. 1) utilizes hot water as the heating medium. The only moving part in the system is the water pump which circulates the hot water through the heat transfer unit. The paint to be sprayed is heated in a heat transfer unit located near the spray station. Thermostats accomplish close control of paint temperature. The paint is conducted through a jacketed hose most of the way from the heat transfer unit to the spray gun. Desired paint temperature is thus maintained. Water for the system is heated in a water heater which can be located at any convenient point. One water heater will handle several heat exchangers located at different spray booths or points of usage. Each spray station must have a heat exchanger for each color which is to be sprayed at that station.

Paint to be sprayed is supplied to the heat exchanger from a pressure tank or a circulating system. Figure 1 shows a heat exchanger mounted on a spray booth wall. A portable unit is shown in Fig. 2. The portability feature of the unit makes it possible to spray hot paint indoors or outside. It is also useful in painting large items of equipment which would be difficult or im-

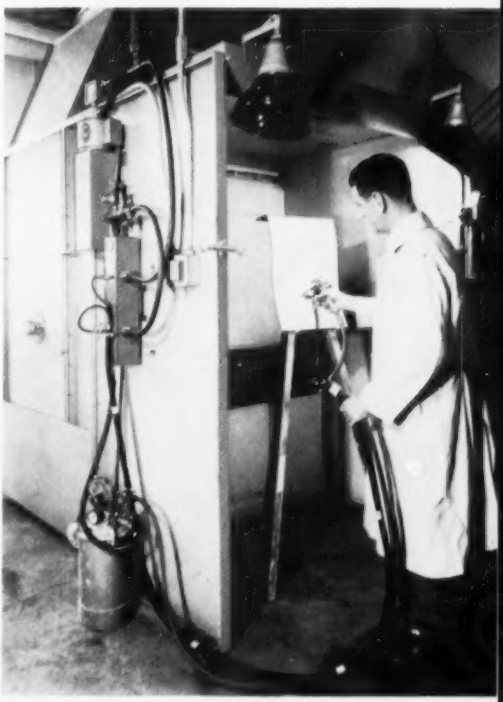


Fig. 1—DeVilbiss P-MH-601 paint heater (on exterior wall of spray booth) is used by one operator spraying one material. Includes 1 MH-503 3-k.w. water heater, 1 MH-501 heat exchanger, heater hose and coupling.

"Paint heaters may be used to heat paint that is sprayed electrostatically or applied in spray touchup operations . . ."

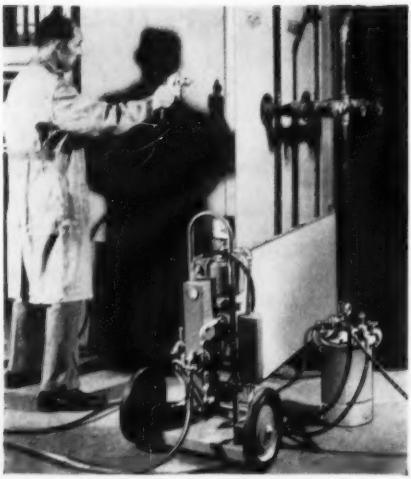


Fig. 2—DeVilbiss portable paint heater and pressure tank setup for spraying objects too large to move through a spray booth.

possible to spray in a spray booth.

In another type of paint heater the paint flows in a circular pattern through one section of the heating device where it is heated to a predetermined temperature by electric coils located in the adjacent section of the unit. There is no direct contact between the paint and the heating medium. The paint is circulated continuously between the heater and the spray gun so that paint temperature and paint viscosity are held to predetermined values.

The unit combines the proved experience of a coilless heat exchanger with the "paddle wheel" simplic-

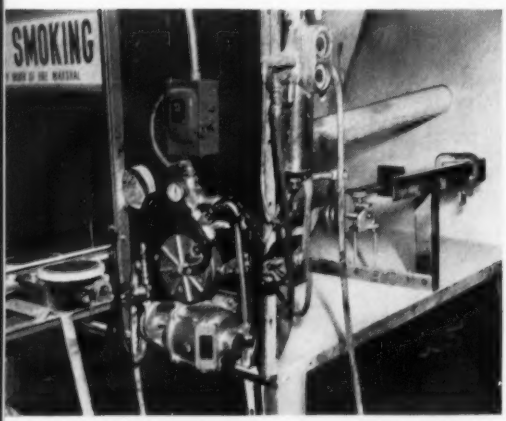


Fig. 3—Spee-Flo paint heater supplies heated paint to two automatic spray guns at Kelley Manufacturing Company, Houston, Texas. Zinc plated 26-gauge "Z" forms of sheet metal, 10 feet long, are coated with white lacquer in this conveyorized setup. (Photograph courtesy The Spee-Flo Company.)

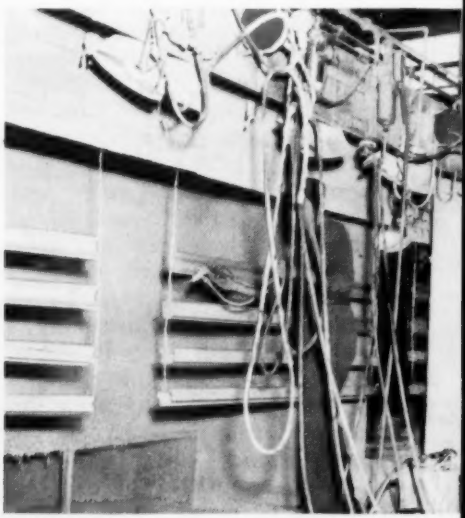


Fig. 4—In the Chicago, Illinois, plant of Curtis Lighting, Incorporated, Spee-Flo paint heaters are used to heat the white baking enamel, which is applied to metal parts for fluorescent fixtures by electrostatic spraying or by manual spray touchup operations. (PRODUCTS FINISHING Staff Photograph)

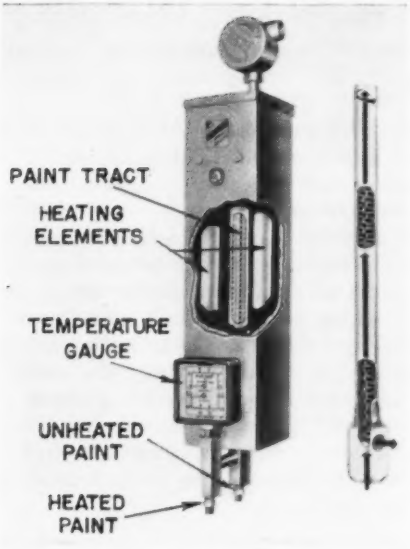


Fig. 5—Binks Dualheet Paint Heater. Removable paint tract (right) makes maintenance easier. Thermostats control paint temperature.

ity of an electric-powered centrifugal pump designed to handle all types of industrial finishes, regardless of their abrasive content. The unit is designed to heat the paint, maintaining a uniform temperature and constant fluid pressure at the spray gun. Figure 3 shows an installation of this type of electric paint heater in the plant of Kelley Manufacturing Company. One heater supplies heated white lacquer to two automatic spray guns. These guns spray 10-foot sections of sheet metal as they are fed past the guns on a conveyor traveling at the rate of 1½ feet per minute.

Paint heaters, one of which is illustrated in Fig. 4, may be used to heat paint that is to be sprayed electrostatically or applied in spray touchup operations. Another type of paint heater incorporating a removable paint tract is shown in Fig. 5. The paint heater, which is electrically heated, can be used as a portable or stationary unit. The standard unit is designed to raise paint to a temperature between 160 and 180 deg. F. at the rate of 8 gallons per hour. A heavy-duty model, which can heat paint at the rate of 15 gallons per hour, is also available. Another type of paint heater is shown in Fig. 6, in an installation for the hot spraying of white enamel on refrigerator shells. This type of paint heater heats both the incoming paint and air to 160 to 200 deg. F., and circulates the hot paint continuously between the heater and the spray gun by means of a

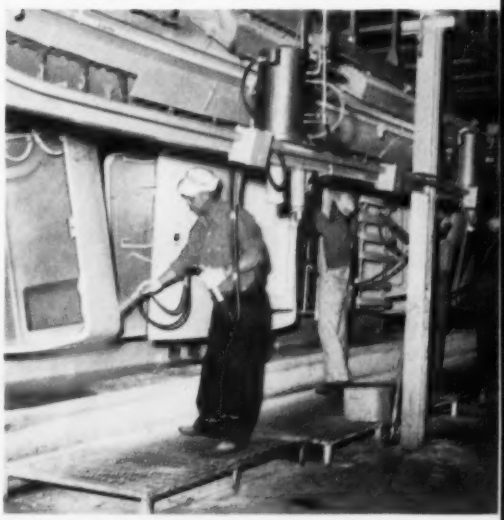


Fig. 6—Bede paint heater mounted above working area and in front of 54-foot water wash spray booth at Rex Manufacturing Company. Here white finish enamel is sprayed hot on refrigerator cabinets as they are transported through the spray booth on an overhead conveyor. (PRODUCTS FINISHING Staff Photo.)

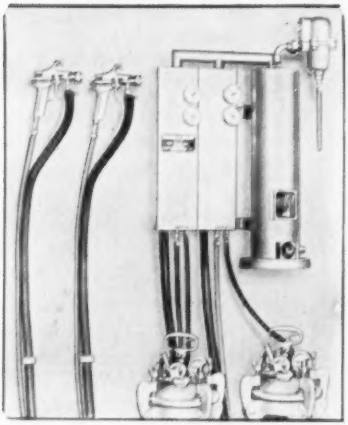


Fig. 7 — Therm-O-Spray Multi-colour Type SPC-42/2 paint heater: air heats paint

specially designed fluid pump. Facilities for control of paint temperature and pressure are incorporated into the unit.

A paint heater which operates on a somewhat different principle is illustrated in Fig. 7. With this type of paint heater, the air supplied to the spray gun is electrically heated and this in turn heats the paint. The unit may be used with any standard painting equipment. During spray interruptions the liquid hose is kept hot by circulation of the hot air.

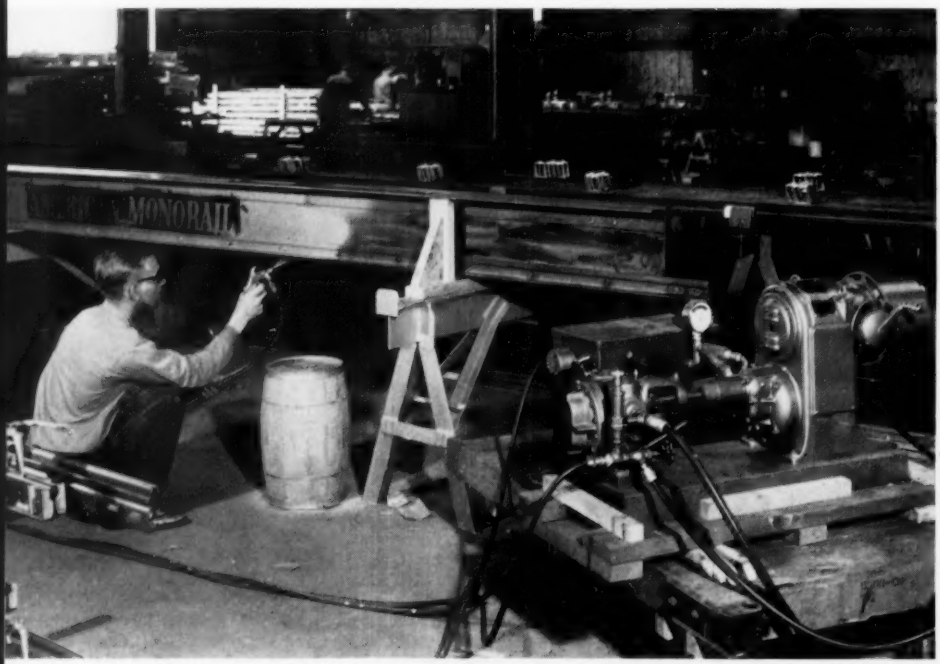


Fig. 8 — Large components for cranes are spray finished at American Monorail Corporation, Cleveland, Ohio, using a truck-mounted Bede Airless Spray Painting Unit. Paint overspray is slight. No spray booth is required. (Photo courtesy Bede Products Corporation.)

Airless Spray Painting

A further development of the hot spray method is called airless spray painting. The hydraulic airless system of spray painting employs a gear pump rated at 35 gallons per minute to syphon paint from a conventional paint storage tank. A fluid pressure ranging from 300 to 600 p.s.i. is built up in the circuit on the outlet side of the pump. Next, the paint is passed through a 4-k.w. explosion-proof heater which elevates and controls the temperature of the material at a point between 160 and 200 deg. F.

The key to the success of the process has been the use of heat, which accomplishes two things—it lowers the viscosity of the material so that it is easier to atomize, and it builds up a vapor pressure whereby the tail-end fractions of the solvents are brought to a boiling point, and upon release to the atmosphere the flashing off of the solvent assists in atomization. In effect, the solvents within the paint are used as an atomizing agent. No air or other atomizing medium is used. Heated material is constantly being recirculated through the spray gun regardless of whether or not paint is being sprayed.

Fig. 9—Tractors are too large to be finished in the usual spray booth. Final spray finishing of certain areas of assembled tractors is performed in the Cleveland, Ohio, plant of the Oliver Corporation with a Bede Airless Spray unit. The paint finish dries quickly.

Table I

APPLICATION RECOMMENDATIONS FOR AIRLESS SPRAY PAINTING

Finish	Temperature (deg. F.)	Pressure (p. s. i.)	Viscosity (77 deg. F. No. 4 Ford Cup) (seconds)
Synthetic Enamels	180-210	400-600	32-40 (heavy film) 27-35 (light film)
Lacquer	165	500	30-38
Lacquer Sealer	135	400-500	22-30
Vinyls	180-190	500-600	27-35
Nylon	130	600	——
Neoprene	180	500-600	Below 27
Plastisols	Below 130	800-1500	As low as practical

Spray performance, the volume and angle of spray, is controlled not by a gun adjustment, but by the selection of the nozzle. Thus the variable of spray gun fluctuations is eliminated. Recommended spraying conditions for a number of organic coatings are listed in Table I.

Figure 8 shows an airless spray unit in use in the plant of the American Monorail Corporation, Cleveland, Ohio. Figure 9 shows an operator spraying an Oliver tractor with airless spray in the plant of the Oliver Corporation, Cleveland.

A variation of the airless spraying equipment described above is called the "Flexaflo HydraAirless" spray painting method, developed by The Spee-Flo Co. This system employs an air-operated pump to maintain the desired fluid pressure and introduce paint to the system as it is used—the pump does not circulate the paint. Paint under pressure flows through a heater which raises the temperature to the desired point. Flexible heaters within the fluid hose maintain temperature of the paint from the time it leaves the main heater until it enters the spray gun. One heater within the hose maintains viscosity control temperature; the other is a booster, actuated automatically when increased material consumption requires more heat.

Steam Spray Painting

One of the difficulties involved when air is used as an atomizing medium for spraying paint is that paint overspray has a tendency to bounce back into the operator's face and away from the parts to be sprayed. This is annoying to operators and causes some paint loss through overspray. One way to overcome this objection and to minimize paint loss is to use steam instead of air as the paint atomizing medium. A source of steam pressure that will maintain 60 pounds per square inch at the spray gun will accomplish satisfactory paint atomization. Once the paint has been sprayed, the steam is released

". . . use of steam makes possible a wider fan of paint spray on each spray gun . . ."

to the atmosphere and vaporizes, eliminating any back pressure.

In the Evansville, Indiana, plant of Whirlpool-Seeger Corporation, steam spraying is used to apply primer and finish coat enamel to refrigerator cabinets and other exterior parts (Fig. 10).

For the primer and finish coat applications the superheated steam pressure is controlled at a point between 40 and 60 p.s.i., and the paint fluid pressure is regulated between 2 and 10 p.s.i., according to paint and application conditions. The use of steam makes possible a wider fan of paint spray on each spray gun so that the surface can be covered with fewer strokes. As a result there is less sprayer fatigue.

When the superheated steam is released from a paint spray gun, there is immediate dissipation of velocity energy into the paint and the surrounding atmosphere. This results in a minimum of turbulence on the surface of the objects being sprayed and also a minimum of paint loss caused by rebound from the sprayed surface. Other advantages experienced include improved paint mileage, decreased difficulties

Fig. 10—Sprayers apply primer coat to refrigerator cabinets at Whirlpool-Seeger Corporation, Evansville, Indiana, plant using the steam spray process. Superheated steam is used as the paint atomizing medium. (PRODUCTS FINISHING Staff Photograph.)

with pinholing and popping in the paint film, increased film thickness, and fewer coats (when desired).

Steam Spraying is basically the same as conventional air spraying, but the use of superheated steam in place of compressed air results in a marked contraction in volume of the spray stream between the gun and the work, whereas with air, an expansion occurs on leaving the spray gun. This contraction in volume, or collapsing of the steam, enables the paint to be floated on the work.

With steam spray, there is also a definite heating of the paint as it goes through the head of the gun, with a corresponding reduction in viscosity. This permits the use of lower atomizing pressures than are normally used with air. The obvious difficulty of water condensation in the lines and on the work is overcome by (1) maintaining the steam at a degree of superheat that keeps it above the condensation temperature and (2) by use of a continuous "bleeding" type of spray gun, in which there is a continuous steam flow even when the gun is idle.

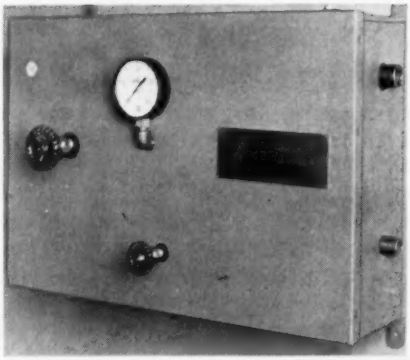


Fig. 12—Steam Conditioner for 10 guns.

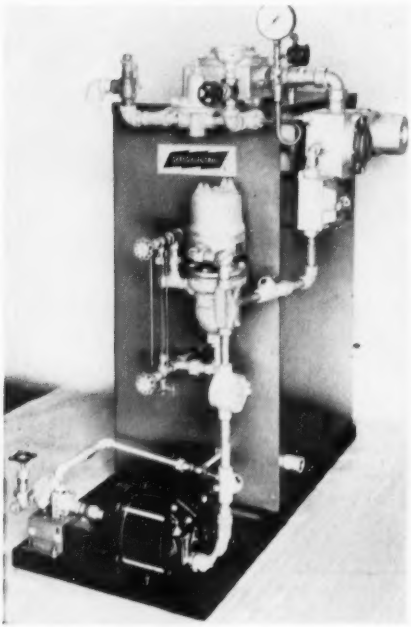


Fig. 11—Speedylectric Steam Generator.

As a source of spray-painting steam, Speedylectric Steam Generators (Fig. 11) with electrical-explosion-proof construction provide non-fluctuating pressure and quality. The Speedylectric Superheater is designed to serve one or two guns and where the steam source is a Speedylectric Steam Generator, located not more than 40 feet away, the superheater easily ensures dry steam at the gun without introducing valves or other devices required where plant steam is used.

Where central plant steam is used for steam-spray painting, two variables are ordinarily introduced — pressure variation and moisture variation. If the steam pressure in the distribution mains is 75 p.s.i.g. or

more, the pressure variable can usually be eliminated through the installation of pressure regulating valves. The moisture variable presents a more difficult control problem. Condensation, taking place continually in steam lines, accumulates and may intermittently be picked up by the steam stream and carried in the form of finely divided drops of water. These slugs of very wet steam may come through so fast that the superheater is taxed beyond its capacity. Then wet steam reaches the gun and a paint job becomes a reject.

To improve the quality and control the pressure of plant steam, Pantex engineers have developed a "Steam Conditioner," which incorporates in one packaged unit all of the valves, gages, regulators, strainers, separators and traps required to "condition" plant steam, prior to superheating for steam-spray painting. The Pantex Speedy-lectric Steam Conditioner (Fig. 12) is installed between the steam source and the Superheater. It is designed to serve from one to five superheaters or one to ten guns. No other valves or control equipment are needed.

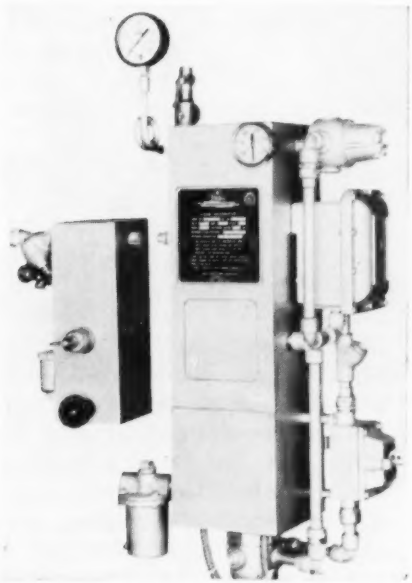


Fig. 13—Steam Superheater for two guns, and Steam Conditioner for two guns. (Photos 11, 12, and 13 courtesy Pantex Manufacturing Corporation, Pawtucket, Rhode Island.)

Where the spray booths and the superheaters are spread out over a considerable area or on separate floors, it is not always practical to locate the 10-gun Steam Conditioner so that it can be used to advantage to serve four or five superheaters. For such installations, a miniature Steam Conditioner is available to be mounted on the superheater at the steam inlet (Fig. 13). This unit has ample capacity for one superheater (2 guns). No other valves or control equipment are needed and the installation for operating the superheater with plant steam is greatly simplified.

Spraying Catalyst Coatings

Catalyst-type coatings can be applied by spraying a suitable resin formulation which is mixed with the proper catalyst materials during the spraying operation. These coatings have many desirable properties such as hardness, abrasion resistance, and acid resistance to a degree which can not be attained with other type coatings. In many cases the hard coatings are formed without the baking operation which

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Fig. 14—DeVilbiss Catalyst Spray Gun.

would be required for other materials. Types of materials which have been applied by this method include polyesters, epoxys, conversion varnishes, and iso-foams.

The equipment required to apply this class of organic coatings includes pressure tanks specially designed for the materials in question, special types of fluid hose, and a spray gun which mixes the two materials (Fig. 14).

The spray gun is designed so that only the catalyst is injected into the center air chamber of the gun. As the trigger of the gun is pulled, the catalyst mixes with the center air stream and this produces the necessary mechanical action for inter-mixing with the resin material OUTSIDE the air cap of the gun. Necessary controls and adjustments on the gun and on the pressure tanks make possible correct spraying speed, spray gun pattern, and proper ratio of resin to catalyst. A paint heater can be used to control the resin viscosity just as it is used for the same purpose in spraying other types of paints.

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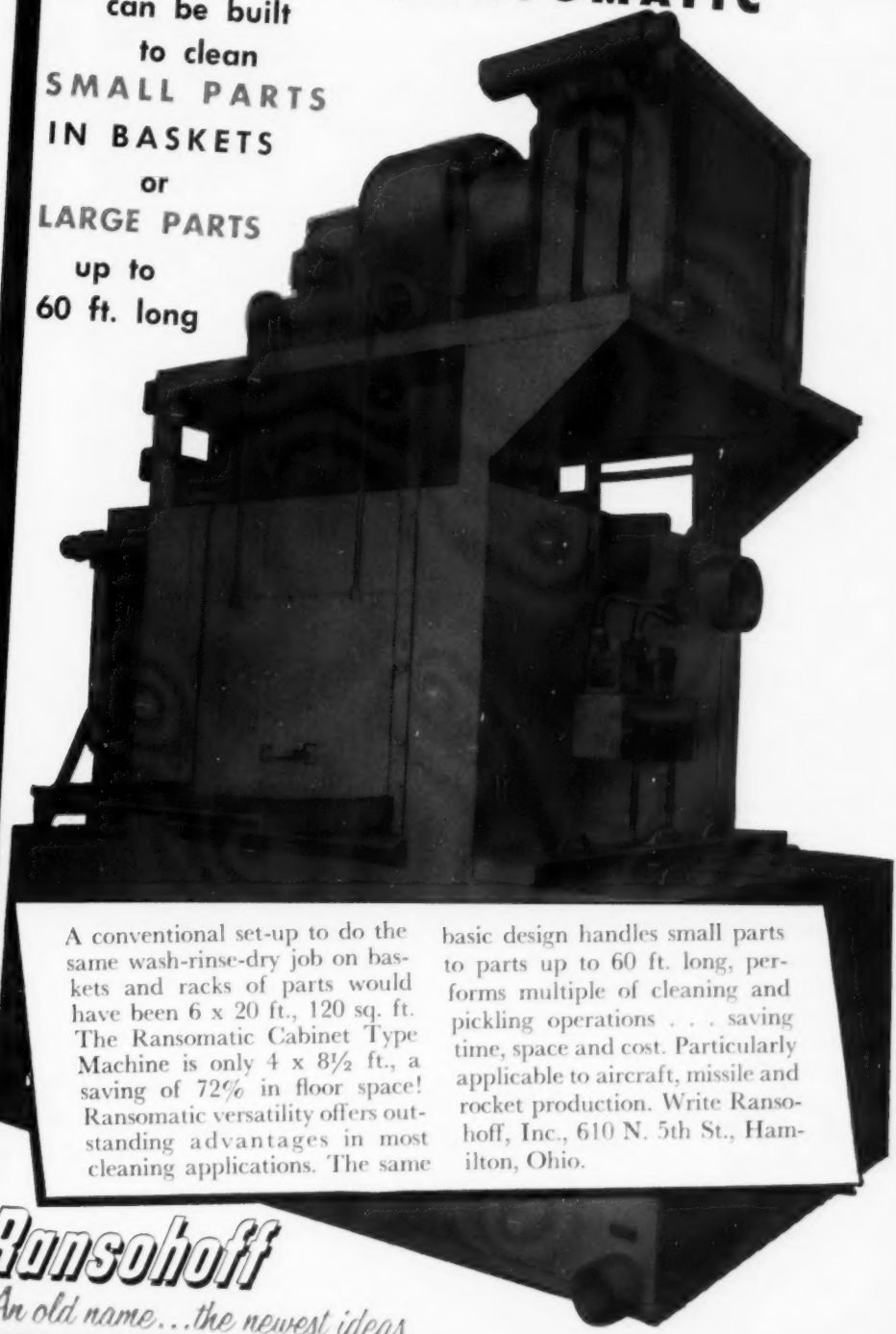

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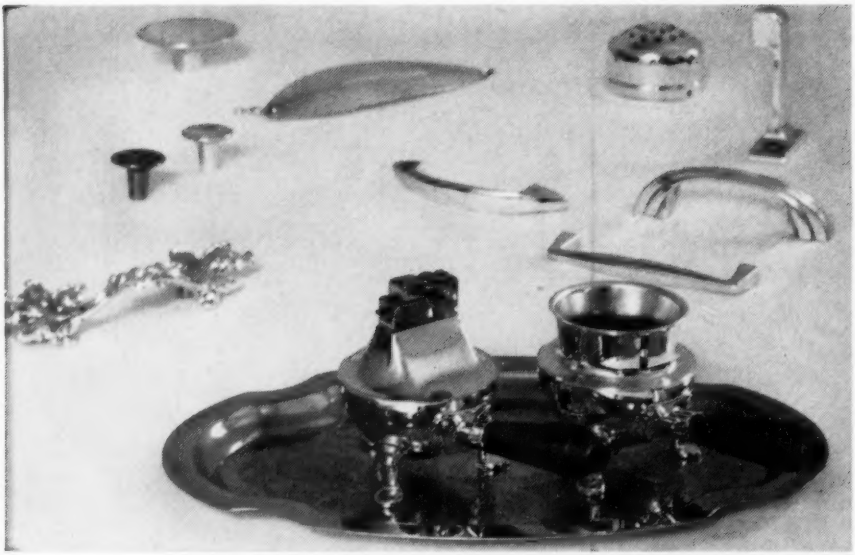

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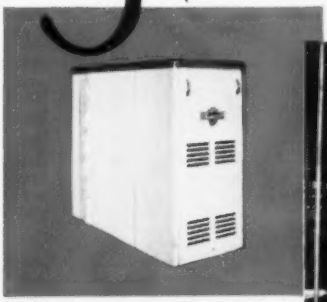

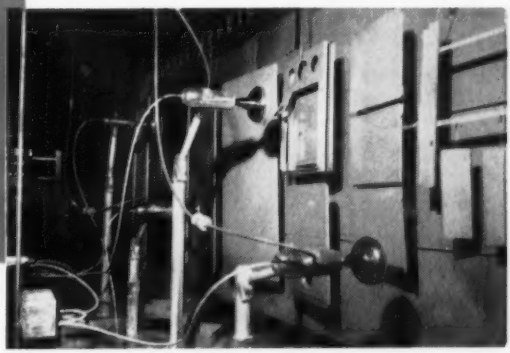

This Lo Boy model, Series 6000, is typical of the Waterman-Waterbury line of winter air conditioners now painted electrostatically.

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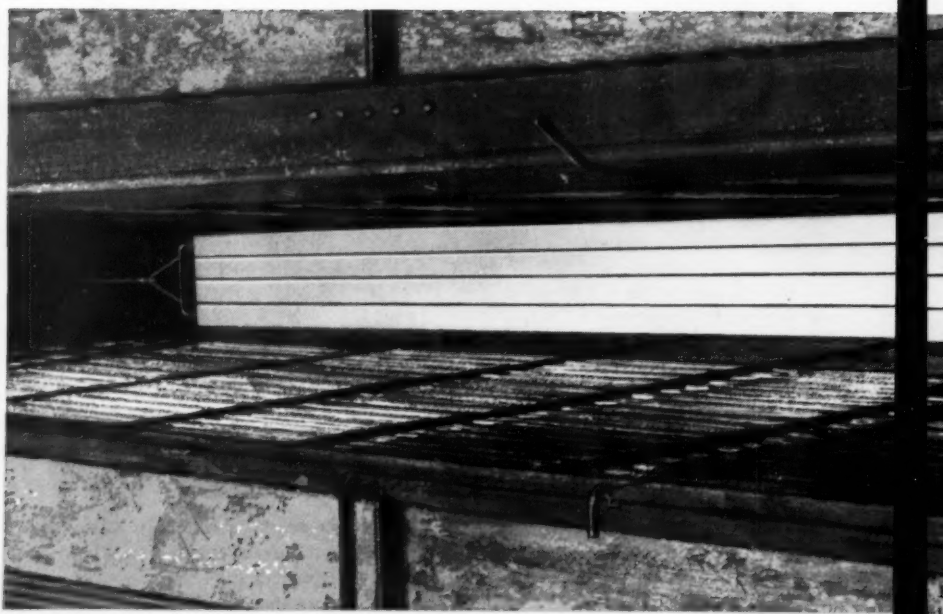

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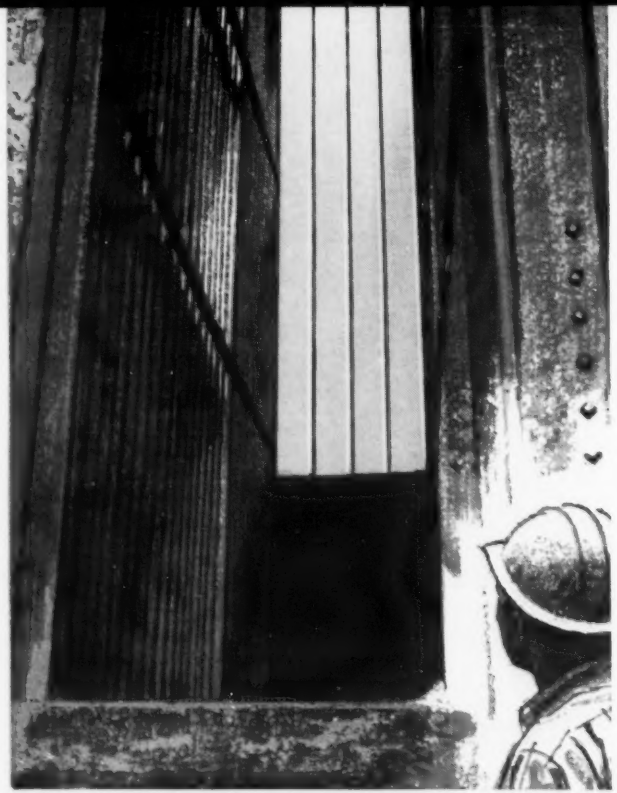

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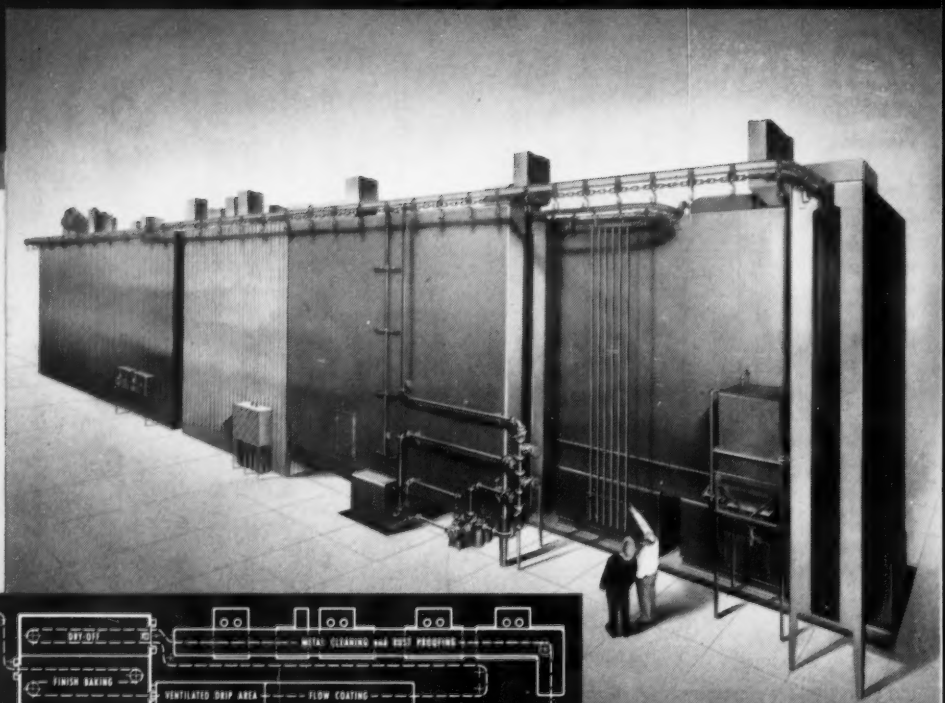

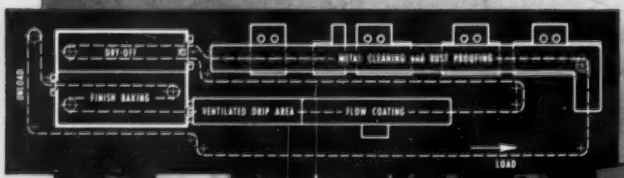

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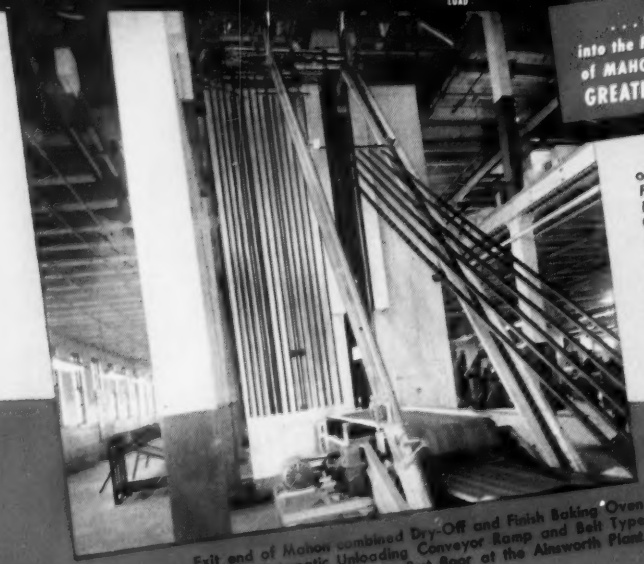

Exit end of Mahon combined Dry-Off and Finish Baking Oven showing Automatic Unloading Conveyor Ramp and Belt Type Handling Conveyors on the first floor at the Ainsworth Plant.

At Right Above: Mahon FIRE-JET Heating Units on the solution tanks of the Mahon Five-Stage Metal Cleaning and Rust Proofing Machine—part of the Complete Mahon Finishing System installed for the MULT-A-FRAME Division of Ainsworth Manufacturing Corporation, Detroit, Mich. Above: General view of the complete system with the building stripped from around it. Plan layout shows arrangement of equipment and sequence of processing operations.

M

E

Finishing SYSTEMS

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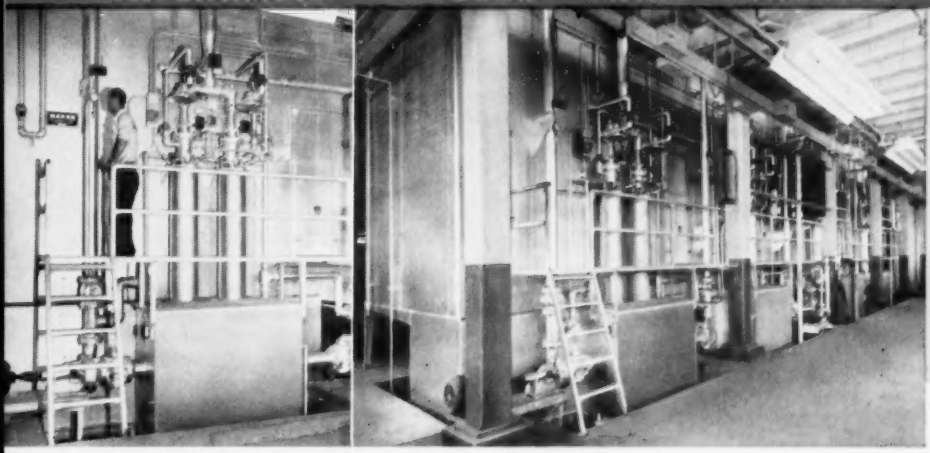

Ainsworth MULT-A-FRAME Channels and Fittings are painted in a COMPLETE MAHON FINISHING SYSTEM!

When the MULT-A-FRAME Division of Ainsworth Manufacturing Corporation was confronted with a finishing problem, they turned to Mahon for the solution. The product is a box channel 20 ft. long with only a ½" slot in one side—these are cleaned, rust proofed and painted outside and inside. Two hundred channels are finished per hour. Thousands of Fittings, Concrete Inserts and other MULT-A-FRAME parts and accessories are also finished on the same line. The finishing equipment extends from a pit in the first floor to the second floor ceiling. Oven Heating Units, Recirculating Fans and Exhaust Fans are located on the third floor. Automatic loaders and unloaders, with ramp conveyors from the first floor, load and unload the main conveyor which is located 27'-5" above the first floor. This is another Complete Mahon Finishing System designed and built by Mahon to do a specific job efficiently and economically. If you have a finishing problem, or are contemplating new finishing equipment, you will find that Mahon engineers are better qualified to advise you on both methods and equipment requirements . . . and better qualified to do the all-important planning and engineering of equipment—which is the key to fine finishes at minimum cost. You will also find that Mahon equipment is built better for more economical operation over a longer period of time. Mahon's background history in this highly specialized field covers thousands of Complete Finishing Systems including Dip, Flow Coating and Spray Equipment for every conceivable product painted on a production basis. See Sweet's Plant Engineering File for complete information, or write for Catalog A-657.

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AHON

finishing clinic

Suggested solutions to problems submitted by readers. Send your problem to our Editorial Staff. There is no charge.

Gold and Silver Lacquer

Question: *We are interested in locating a supplier of gold and silver lacquer. We refer to the gold-like finish found on many jewelry boxes, fishing tackle and metal products.*

E. M.

Answer: We are referring you to various companies from whom you will be able to secure information on gold and silver lacquer.

★ ★ ★

Bright Dips

Question: *We would like to know if there is any better solution for bright dipping copper and its alloys than the sulfuric-nitric acid dip.*

W. R. A.

Answer: We are referring you to several companies from whom you can secure information on chromic acid bright dips.

★ ★ ★

Corrosion Tests

Question: *We have just read the article entitled "Two New Accelerated Corrosion Tests" published in the January issue of PRODUCTS FINISHING.*

It would be appreciated if you could tell us who is the author of this report or, alternatively, the association which he represents. We are interested in any method that would simplify the corrosion testing of chromium plated parts for decorative purposes.

L. W .S.

Answer: We are sending you information on sources for detailed data about the tests described in the article.

These new accelerated corrosion tests make it possible to obtain, in less than 24 hours, some indication as to whether or not a chromium plated part will fail in normal service.

★ ★ ★

Chrome Diffusion Process

Question: *We are interested in obtaining information about a process called "Siliconizing." We understand this process is used to apply a hard, corrosion-resistant surface to a part without changing dimensions of the part.*

We would also like to know the names of the suppliers of chrome powders used in the chrome diffusion process.

H. B.

Answer: We are not familiar with the process called "Siliconizing." It may be similar to the chrome diffusion process or "chromizing."

We are forwarding a catalog which describes chromizing. Possibly the

company by whom this catalog was published can either supply you with chrome powders or direct you to sources of supply.

★ ★ ★

Blackening Stainless Steel

Question: *Can you furnish information regarding blackening processes for use on stainless steels?*

L. P. R.

Answer: In the article "Surface Finishes for Stainless Steels" published in the July, 1956, issue of PRODUCTS FINISHING, there was a reference to one such process. Stainless steel parts are pickled and dried, then immersed in a molten bath of sodium dichromate at 750 deg. F. for 20 to 30 minutes. Parts may then be removed, cooled, rinsed and dried. Subsequent immersion in special oils at 120 deg. F. will impart the glossy black appearance characteristic of black oxide coatings.

We are sending you names of companies who supply chemicals and equipment for blackening processes.

★ ★ ★

Plastic Coating on Wire

Question: *At the present time we are dip painting wire fences for outdoor service. We would appreciate any information you can supply us on coating this wire with a plastic coat in colors of white and green. We prepare our wire by processing through three tanks containing a cleaner, rinse, and a phosphatizing solution.*

We would also appreciate information on dip tinning the wire and what is required for this operation.

N. Z.

Answer: We should like to refer you to some suppliers of plastisol coating materials. These companies supply plastisol coating materials and can also advise as to the proper methods for application of these materials. You may also be interested in seeing a reprint of the article "Plastisol Coating of Wire Products" which was published in the June, 1956 issue of PRODUCTS FINISHING.

For dip tinning the wire, you would need the usual cleaning, acid pickling and metal preparation equipment. In addition, it would be necessary that a tinning vat be provided with suitable heating equipment so that tin could be maintained in a molten state and the wire dipped in the molten tin. For more detailed information regarding equipment for this process, we are referring you to sources of supply for all the equipment and materials needed for the process.

★ ★ ★

Swiss Alupol Process

Question: *We are interested in using the Alupol process in making an aluminum product. Please give us a formula for this process and also send further information concerning the method of dissolving salts in water.*

R. C. D.

Answer: There are various formulations for the Swiss Alupol process. One of the compositions is as follows:

Phosphoric acid	50 per cent (by volume)
Nitric acid	6.5 per cent
Acetic acid	6.0 per cent
Sulfuric acid	6.5 per cent
Water	12.5 per cent
Copper nitrate	3 gm./l.

Operating temperature 200 deg. F., for two to five minutes.

Another variation is as follows:

Phosphoric acid	41 per cent (by weight)
Sulfuric acid	25 per cent
Nitric acid	30 per cent
Boric acid	4 per cent

Alupol baths, as used in Europe, are applied for finishing aluminum and wrought alloys containing less than 2 per cent silicon.

SPOTLIGHTING finishing progress

Metallographic Study of Hot Dipped Zinc Coatings

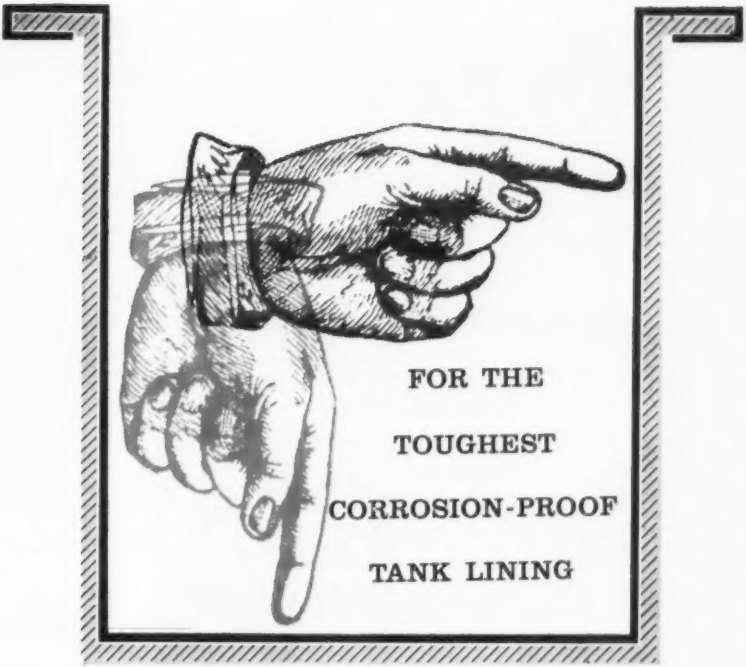
By A. T. BALDWIN & W. H. McMULLEN
Hanson-Van Winkle-Munning Co.
Matawan, N. J.

Hot galvanizing methods used today give coatings that are ductile and adherent; thus sheet and strip can be formed under severe conditions, wire can be drawn to smaller diameters and the coatings on castings, forgings and stampings are more adherent. Some of these improved results have been due to radical changes in the process, such as the use of high (0.10 per cent to 0.20 per cent) aluminum-containing zinc baths in galvanizing strip steel. Others result from better understanding of factors which influence results obtained from use of conventional baths.

Improvements in performance of hot galvanized coatings seem to be associated with the coating structure. Studies reported herein were made to detect and record structural differences. It is hoped that they will guide continued improvement in these desirable characteristics of hot-applied zinc coatings on ferrous objects.

Microscopic examination of structures obtained in various ways are presented here photographically. An effort has been made to add other views of the structures to the familiar ones, which record what is seen in a transverse section of the coating. We have taken longitudinal and tapered sectional views. Of these, the tapered section taken at about five degrees taper discloses the newest information on structural condition of the coating.

Researchers have concluded that the zinc coating is composed of an outer cast structure, referred to as *Eta*, having the same composition as the molten zinc. The zinc-iron alloy adjoining the Eta phase is called *Zeta*, with the formula $FeZn_{13}$. It is a monoclinic crystal frequently called the palisade layer. The next zinc-iron alloy usually seen below the Zeta and at the iron interface is called *Delta*, with the formula



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Unlike other vinyl sheet linings, Amer-Plate is neither laminated nor calendered, but is molded under pressure and heat. The remarkable result is a smooth, extremely dense membrane, impervious to most plating and pickling solutions, oxidizing acids, alkalies and salt solutions. Being non-toxic and non-contaminating, it also may be safely used for lining tanks for food products.

Seams are easily heat-welded to provide a continuous impenetrable layer. Sheets are available in standard 3/32" and 3/16" thicknesses in both black and light gray.

Maximum adhesion is achieved with Amer-Plate 20Y Adhesive. This remarkable product bonds the Amer-Plate tenaciously to wood, steel and concrete surfaces so that once it has set, it is almost impossible to remove. Even in immersed temperatures as high as 160°, Amer-Plate 20Y Adhesive and Amer-Plate sheet lining remain completely unaffected. Amer-Plate membrane sheathed with acid-proof brick is an unbeatable combination for protection of high temperature pickling tanks and other critical applications.

Although Amer-Plate is resistant to most normal abrasion, if damaged, it can be repaired easily (even years later) right on the job.

Factory trained Amer-Plate applicators are located in all major cities to give you *immediate* service. You can be assured of expert workmanship—in the least amount of time. For additional technical data, please write:

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$FeZn_7$. It is a bipyramidal hexagonal crystal. Other alloy crystals shown on a zinc-iron equilibrium diagram, such as *Gamma*, Fe_3Zn_{10}, usually do not show in photomicrographs of currently produced coatings because the immersion time is too short. At long times of immersion, a thin band of this Gamma alloy appears between the Delta phase and the steel itself.

The character of the coating produced on commercially galvanized wire by the charcoal wiping process is shown in Figs. 1, 2 and 3 in three views in each case. Galvannealed wire is shown in Fig. 4. Low and high carbon steel coatings are shown in Figs. 1 and 2, where the major difference between the two coatings shows up in the taper sections. Note the lined structure of the Delta phase in Fig. 2 not appearing in the Delta phase of the low carbon wire. We believe these dark lines indicate grain boundaries and are not evidence of structural weaknesses. This is disclosed also in Fig. 3 where the longitudinal section shows flowing of these alloy layers as a result of reduction in area with drawing. The taper section shows the laying over of the Zeta crystals and further evidence of the adherence to the ferrous base.

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TESTER

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REPORT NO. 3 / ON LOWERING TODAY'S COST OF PRODUCTION

Preventing scale in aluminum etching tanks

Also: increasing rate of etch, obtaining even, diffused satin-finish

Time and manpower needed to de-scale aluminum etching tanks are major maintenance costs. In addition, the chipping and chiseling shortens tank life, damages coils and often causes leaks.

By holding dissolved aluminum in solution, Diversey Aluminux etchant effectively prevents aluminum oxide from precipitating out and building up as rock hard scale. In a 1500 gallon tank, for example, Aluminux holds up to 1000 lbs. of dissolved aluminum in solution . . . *a potential 2000 lbs. of scale!*

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Aluminux solutions last longer since they hold far greater quantities of dissolved aluminum in solution, without interfering with the etching process. Dumpings are scheduled farther apart and over-all compound requirements drop.

Look to Aluminux for solving your etching problems. See how it produces a uniform, satin finish in less time and assures you precision control of degree of etch.

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The galvannealed wire (Fig. 4) shows a prominent Delta layer in the normal section and lines in the longitudinal section which, in this case, result from the annealing. In the taper section the structure shows the effect of this annealing on the Delta layer appearing normally as seen in Figs. 1 and 2. This equi-axial structure of the Delta layer originates as lines at the ferrous interface in all cases coming under our observation.

For comparison of modern coatings on strip steel with that which is characteristic of past general practice, we are including Fig. 5, which shows the coating structure obtained on sheet steel galvanized in a bath with little or no aluminum present. At the bottom of each

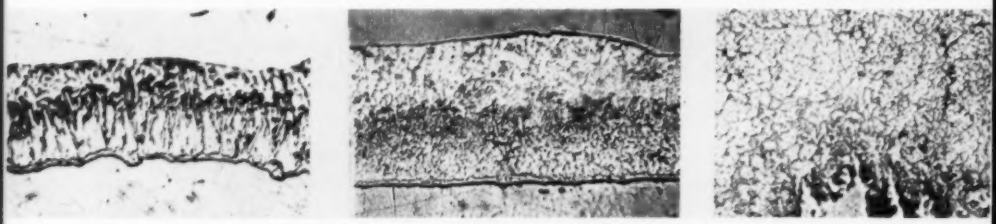

Fig. 1—Galvanized wire, charcoal wiped, 0.04 per cent carbon. Normal (left); longitudinal (center); taper (8X) (right). Magnification, 800 X.

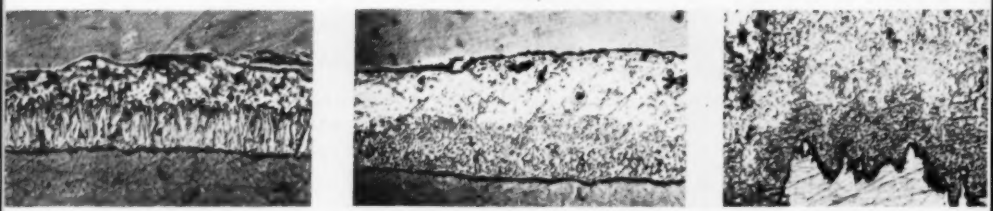

Fig. 2—Galvanized wire, charcoal wiped, 0.6 per cent carbon. Normal (left); longitudinal (center); taper (8X) right. Magnification, 800 X.

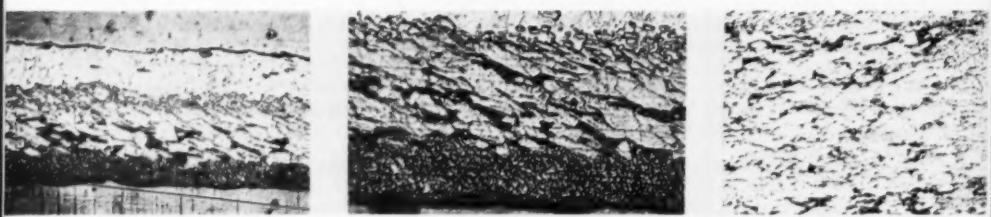

Fig. 3—Drawn galvanized wire, 0.6 per cent carbon. Longitudinal (1000 X) (left); longitudinal (1200 X) (center); taper (800 X) (8 X) (right).

picture is the ferrous base and immediately above that is a thin, irregularly wide layer of the Delta phase. Then follows the needle-like Zeta layer and lastly the purer zinc, or Eta layer.

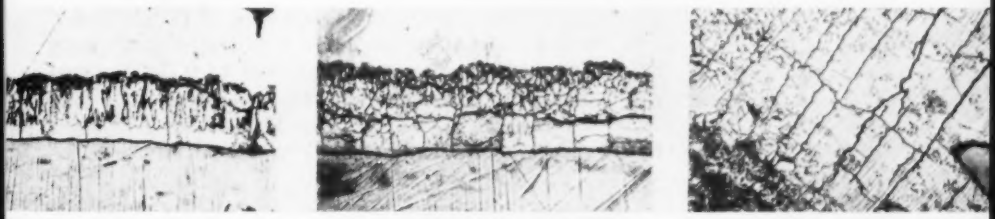

Fig. 4—Galvannealed wire. Normal (left); longitudinal (center); taper (8X) right. Magnification, 800X.

Fig. 5—Galvanized sheet—rimmed culvert stock. Fe 1164 mg/ft2. Magnification, 800 X.

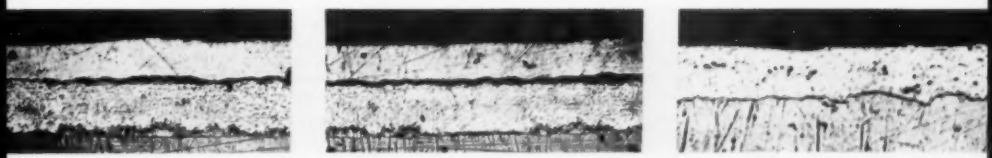

Fig. 6—Galvanized strip—rimmed stock. Fe 350 mg/ft2 (left); Fe 198 mg/ft2 (center); Fe 29 mg/ft2 (right). Magnification, 800X.

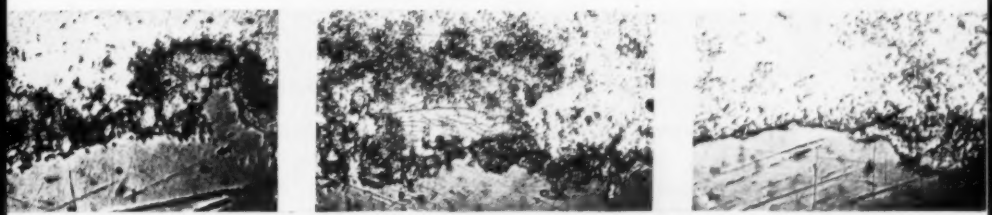

Fig. 7—Galvanized strip—rimmed stock—taper sections (8X). Fe 350 mg/ft2 (left); Fe 198 mg/ft2 (center); Fe 29 mg/ft2 (right). Magnification, 800X. (Photos courtesy Hanson-Van Winkle-Munning Co., Matawan, N. J.)

Attention is drawn to the distribution of the Delta and Zeta layers, in that there are many more Zeta crystals in those regions of least thickness of the Delta layer. This relationship appears frequently with galvanized coatings and is important since the needle-like Zeta crystals are readily detached when the coating is disturbed. This situation might possibly lead to the production of more dross.

The modern, high-speed continuous hot galvanizing of strip steel is carried out in zinc baths containing from 0.10 per cent to 0.20 per cent aluminum, the so-called high aluminum baths. This is done because the presence of the aluminum inhibits the attack of the zinc on the strip, thus limiting the iron in solution in the zinc to appear as crystals in the cold coating. As a result the homogeneous coatings (Fig. 6) are obtained, which in some cases, seem to be free of any of the phase crystals encountered by old methods, as shown in Fig. 5.

Typical views of these coatings which show in what way the amount of iron in the coating appears as some sort of crystal are given in Fig. 6. Note especially the very homogeneous coating where only

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ACETATES Amyl, Normal Butyl, Secondary Butyl, Ethyl, Isopropyl, Normal Propyl

ALCOHOLS Normal Butyl, Secondary Butyl, Isopropyl, Methanol, Proprietary Ethyl Alcohol, Normal Propyl

ALKALIES Caustic Soda, Trisodium Phosphate

ALKANOLAMINES Diethanolamine, Di-Tri-Isopropanolamine, Monoethanolomine, Monoisopropanolamine, Triethanolomine

AROMATIC SOLVENTS Benzol, Toluol-Xylol, Heavy Aromatic, SC Solvents #1, 2, 3, 100, 150, and 450

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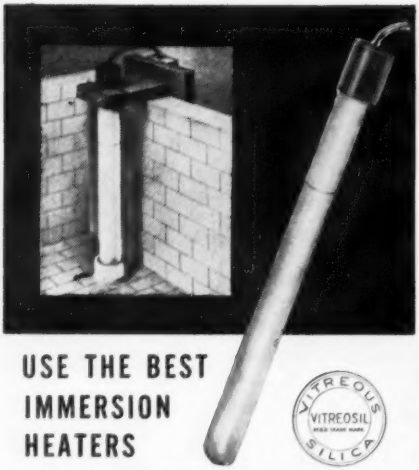

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29 milligrams of iron per square foot of the coating is present. Crystals are present, as will be seen in the tapered view of this same coating in Fig. 7.

The taper section views of these three coatings disclose phase crystal formations which are typical of the zinc-iron binary alloys. This is clearly seen with the 198 milligrams of iron per square foot view, where the lined Delta formation exists. If crystals which include aluminum in their structure are present, they must be minute. We have not been able to determine any consistent relationship analytically between the iron and aluminum contents of the coating. Each manufacturer appears to create coatings having an aluminum content which reflects his use of metal in his zinc bath. The coatings recorded in Figs. 6 and 7 are from product secured from more than one producer.

Modern hot galvanizing practice is proceeding in two ways to control the amount of iron dissolved by the fluid zinc in actual operation. With wire the method of control is to limit time of exposure of the ferrous base to the zinc without the aid of aluminum. Use of aluminum inhibitor is greatest in the U. S. A. on continuous strip. Possibly these two approaches will be expanded in use, depending largely on the ease of application to the work to be zinc coated.

Adapted for publication in PRODUCTS FINISHING from a paper presented by A. T. Baldwin and W. H. McMullen before a meeting of the American Zinc Institute.

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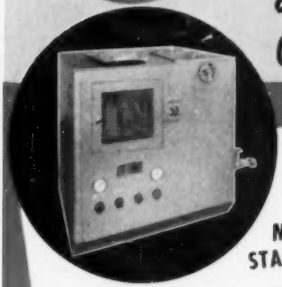


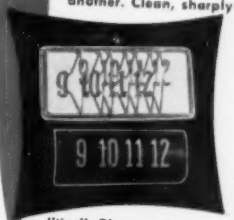
PRESSURE CONTACT PAINTING MACHINE WITH STATIONARY GUN

For painting areas up to 3" x 1½", such as bumper guards, headlights, and radiators on toy autos; doll's eyes or mouth; depressed or raised spots on automotive diecasts; fine detailed dials, control knobs. Capacity up to 1200 pieces per hour, depending upon shape and size of part, handling facilities, and skill of operator. Placing part into the mask and depressing table top about ¼" starts paint operation. Timer controls length of spray time, consequently same amount of paint is applied to every piece regardless of rate of operation. A regulator and gauge maintain constant air pressure to the timer. A regulator and gauge for atomized air controls the accuracy of the gun output.

ELECTRO-FORMED METAL SPRAY PAINTING MASKS

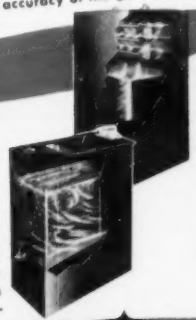
(Made by Patented Process)

Permit rapid wet painting, one color after another. Clean, sharply defined letters and decorative effects obtained on intricate plastic forms, die castings and stampings. The "loose" inside of letters and numerals, such as "0" and "6", is held in position by arched bridging to eliminate objectionable "ties". Plug masks, as here illustrated (keep depressed areas clear, while spraying background); lip masks (protect background while painting depressed areas), and block-cutout, plane surface masks (coat restricted area for fast wiping operation).



MASK WASHING MACHINES

The only mask washer utilizing a high pressure spray system on both sides of the masks. In many instances 20 to 25 wet coats of lacquer on masks have been removed in 20 seconds.



STANDARD PRESSURE FIXTURES

Hold mask and part firmly in position during spraying to assure exact registration. Reduce rejects, lengthen mask life, and speed production by freeing both hands for productive movements.

Conforming Matrix Corporation, pioneers and the largest and only company devoting its entire efforts to the spray decorative finishing field, offers you a most complete engineering service. You are invited to submit your multi-color separation problems.

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Can be used in standard and high speed formulations . . . still and barrel plating

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Abbott's new booklet gives the latest information on barrel finishing by the Abbott Method. It describes equipment and materials and how to use them. *The abbot* introduces to barrel finishers the new Abbott Welded Steel Barrel—now available for the first time. The booklet, ***"The Abbott Method of Barrel Finishing,"*** is a must for methods engineers and production men everywhere.

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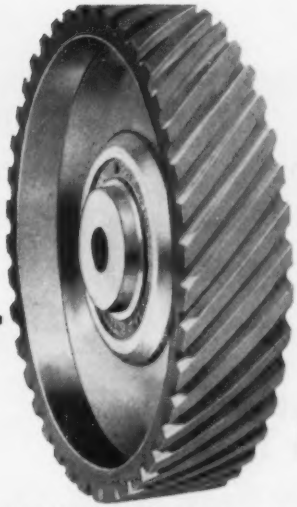
A BETTER BACK-UP WHEEL

R57

FOR YOUR ABRASIVE BELTS



45° Standard For Stock Removal

AVAILABLE NOW IN POPULAR 14" DIAMETER SIZES AT BIG SAVINGS

You can get the new R57 RUBBER CONTACT WHEELS at lower prices in 14" Diameter sizes*** due to newly developed production techniques. These new wheels have all the well-known features of the R50 and R54 models—LONGER BELT LIFE . . . OIL RESISTANT RUBBER . . . WET OR DRY OPERATION . . . HEAT DISSIPATION . . . MAXIMUM SAFETY . . . other features. And what's more these wheels have a 30% trade-in value.

***The new R57 and the R50 and R54 contact wheels are available in many popular sizes . . . ½" to 22" DIAMETERS in WIDTHS from 1" to 6". Other wheels made to your specifications.

14"

TYPE	WIDTH OF FACE 1"	2"	3"	4"
PLAIN	32.00	34.00	36.00	38.00
SERRATED	37.00	39.00	42.00	44.00

AVAILABLE IN PLAIN OR SERRATED FACE IN ALL DUROMETERS

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DElta 6-8900

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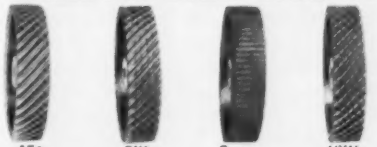

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Practical Applications of Modern Products

Pre-Cut Masks Speed Tractor Production

Caterpillar Tractor Co., one of the oldest and largest manufacturers of earth-moving equipment, has found a way to speed up finishing operations on the production line for its mammoth D-9 tractors (Fig. 1). Masking these tractors prior to painting used to be a time-consuming and difficult task. In 1954 the company began using pre-cut, self-sticking masking tapes called "Quik Masks," made by the W. H. Brady Co., Milwaukee, Wisconsin. The custom-shaped, liner-mounted masks have not only cut time required for masking; they have also produced a neater, more accurate job.

Before the company began using the pre-cut masks to protect such areas as serial number plates, gear shift plates, patent plates, gage glasses on instrument panels and so on, razors, scissors and dies had to be used to cut out special shapes from long rolls of tape. Aside from the loss of time involved in this operation, the company found that considerable masking tape was wasted by doing it this way; hand cut shapes were not always accurate, and sometimes had to be cut over again; and scissors and razor blades on the line were safety hazards.

Application of the Quik Masks to the tractors is completed quickly. The masking operator rides along the assembly line, covering all areas that need to be masked with pieces of tape pre-cut to the right size and shape to fit each area that must be masked. Before the tractor reaches the spray booth, all areas requiring masks have been covered (Figs. 2 and 3).

Caterpillar depends on the Quik-Masks to perform two primary jobs. The pre-cut shapes cover machined surfaces during prime-coating of the tractor, and accurately mask all plated areas during final spray painting (Fig. 4). In addition, Quik-Masks protect all areas during short storage periods of the tractor. The Brady Quik-Masks will hold on tight through extremes of weather, hot or cold, rain or snow.

The Quik-Masks stick readily to metal and glass, and no clean-up is required when the Quik-Masks are removed. Pre-cut masks stick in place on parts without showing any tendency to peel back, even when stored outside.

Other advantages of Brady Quik-Masks show up in crating and shipping, and in testing. In these operations, each tractor is checked for serial number and plate. And when a tractor comes out of storage, it is tested and adjusted before final painting. In each

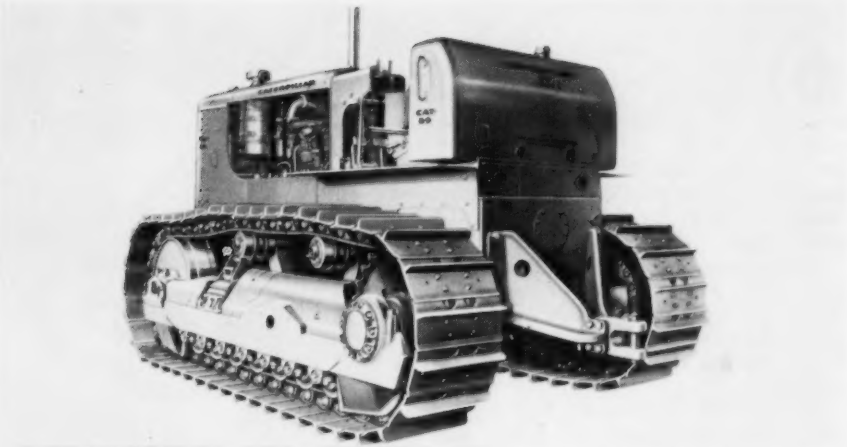

Fig. 1 — Caterpillar D-9 Tractor — overall view: pre-cut masks help to give neater finish.

Fig. 2—Gages and controls being covered by Brady Quik Masks. Painters can work without fear of covering identification marks.

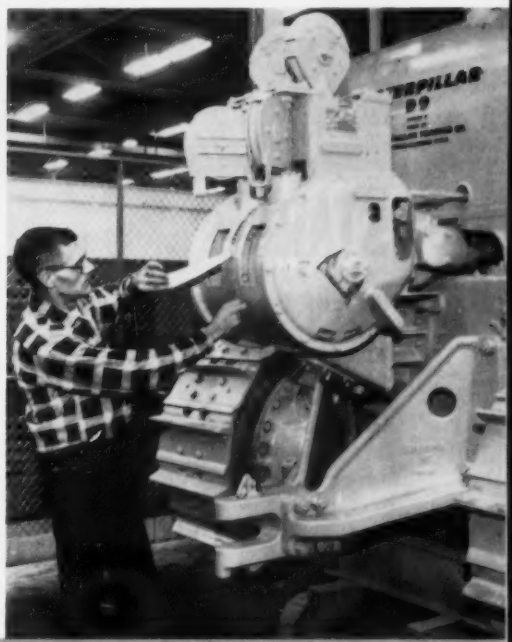

Fig. 3—Caterpillar assembly-line worker applies a Brady Quik Mask to the cable-control winch on this Caterpillar D-9 Tractor.

case, the Quik-Masks are removed so that serial numbers and plates can be checked with inventory records. Then new Quik-Masks are applied right on the assembly line. This is done as the tractor approaches the spray paint booth for a final covering of heavy-duty paint.

Cat equipment is known throughout the world by its bright yellow color, and it gives plant workers a great deal of pride to see that the paint finish is so neat on the machines they help to build.

Caterpillar has found that Brady Quik-Masks are easy to check and pre-plan, and that they can order accurate quantities of these modern tapes in accordance with realistic needs. Because the shapes are pre-cut to exacting dimensions by the W. H. Brady Company, waste is practically eliminated from the masking operation. This also permits close estimates of the costs of masking over long periods of time.

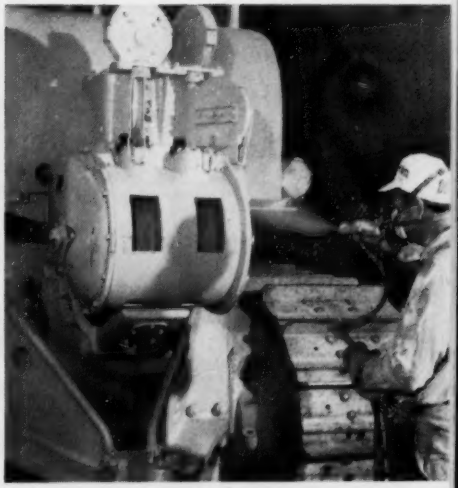

Fig. 4—Spray painter applies a coat of paint to cable-control winch on D-9 Tractor. All identification areas on the tractor are protected by Quik Masks. (Photos courtesy Caterpillar Tractor Co. and W. H. Brady Co.)

By completely modernizing the masking operation, Caterpillar has succeeded in perfecting an important phase of product finishing—the final touch that crowns hours of painstaking design work and engineering know-how behind every machine.

For more data circle 1 on Reader Service Card

★ ★ ★

Vacuum Metalizing Used to Deposit Cadmium on Aircraft Parts

Cadmium is deposited on steel parts for the forthcoming Lockheed Prop-Jet Electra by means of a vac-

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SELF PRIMING
instant filtration
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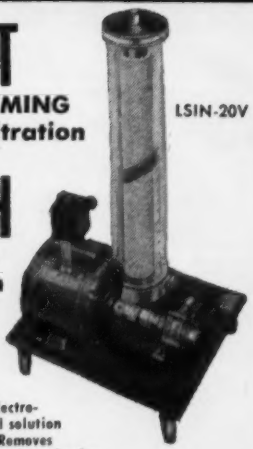
Automatic Backwash Reversal Switch



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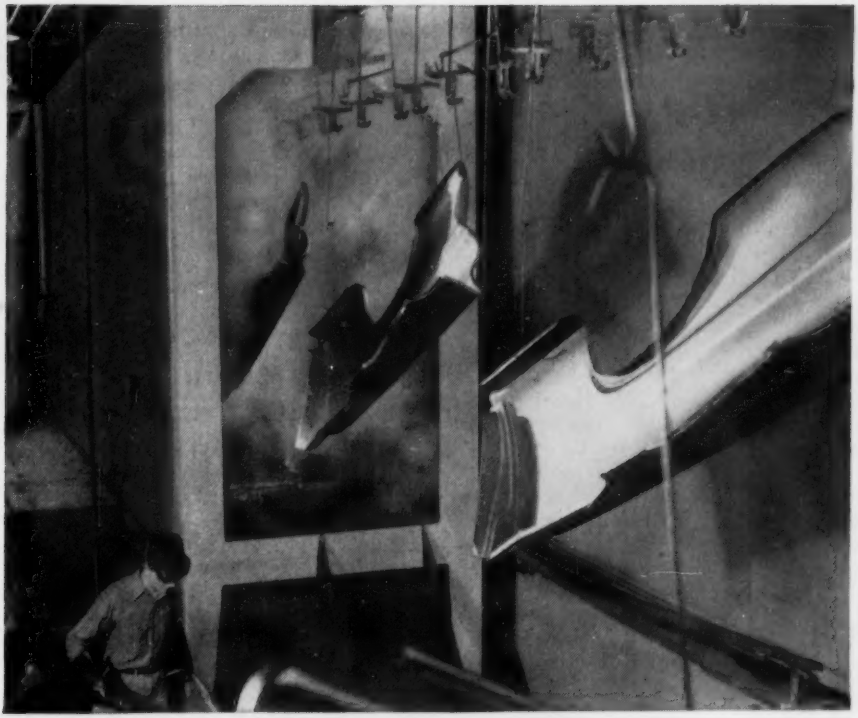

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Does the formulator of your cleaning compounds use Dow Alkali?

Experienced users of metal cleaning compounds prefer formulations made with Dow Caustic Soda or Dow Sodium Orthosilicate for spray cleaning, soak cleaning and electrolytic cleaning. That's an important fact for anyone who cleans metal parts to keep in mind. The reason is simply that experienced users are in the best position to judge the effectiveness and economy of the cleaning materials they use.

Their years of experience have proved to them that formulations made with Dow Alkali *consistently* give them the best results in terms of faster, more thorough cleaning and with fewer parts rejected—because Dow Alkali delivers the most effective cleaning power money can buy! THE DOW CHEMICAL COMPANY, Midland, Michigan, Department AL 610L.

YOU CAN DEPEND ON DOW

For more data circle **361** on Reader Service Card

uum deposition process developed by Lockheed Aircraft and Anadite, Inc.

The vacuum deposition process is said to solve the problem of hydrogen embrittlement, which has been a serious difficulty, especially on high-strength steels. Steel with a strength of 180,000 p.s.i. or higher can be vacuum plated with no danger of hydrogen embrittlement, developers of the method report.

Lockheed uses the process to deposit 0.0003 to 0.0005 inch of cadmium. Deposits of greater thickness than this are possible. The throwing power of the vacuum process is excellent; thus an almost completely uniform coating is obtained in both high and low areas.

To vacuum deposit cadmium, parts are placed in a vacuum chamber and the cadmium is vaporized beneath them. The parts remain at practically room temperature.

The Lockheed-Anadite process produces cadmium deposits that meet all military specifications for cadmium deposits in relation to corrosion resistance, adherence and so on.

Engineers responsible for development of the process are Vern Dress and Erick Berger of Lockheed Aircraft Corporation and Gordon Jenkins and Glenn Boehmer of Anadite, Inc.

For more data circle **2** on Reader Service Card

★ ★ ★

Finishing Razor Parts: Gillette Installs Automatic Cycle Hoist System

An electric monorail hoist with a motor-driven trolley is the heart of an automatic processing system for treating and plating Gillette razor parts.

Engineers inspecting controls of vacuum metalizing machine used to deposit cadmium on steel aircraft parts are Erick Berger, Lockheed Aircraft Corporation, (left), and Gordon Jenkins, Anadite, Inc. (right). (Photograph courtesy Anadite, Inc., South Gate, Calif.)

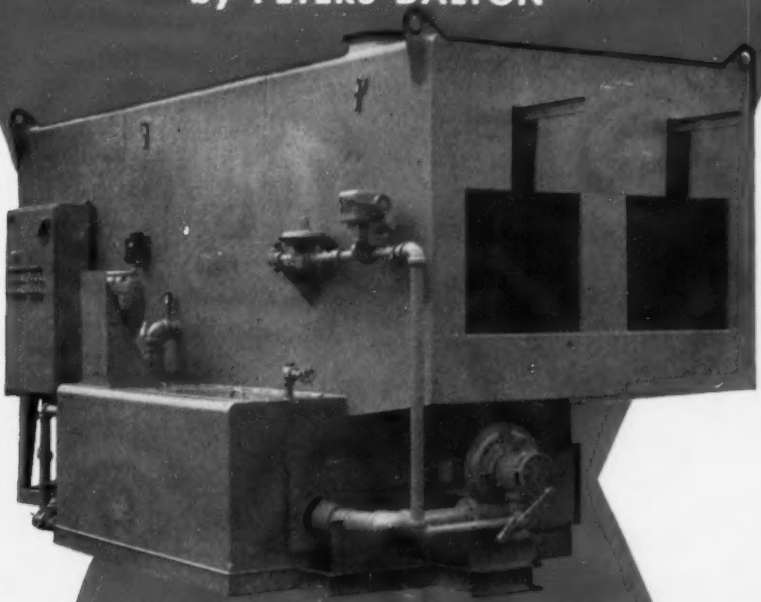
For further information on advertisement on opposite page circle **362** on Reader Service Card——→

Space-Saver for . . .

2 IN 1 FINISHING OPERATIONS

Two-Pass Power Spray Washer

by PETERS-DALTON



The installation above is of a gas heated 2-Pass Power Spray Washer, designed, engineered and built by Peters-Dalton, to simultaneously accept two conveyor lines of lawn and leaf rakes. This is part of a complete P-D system. After the cleaning operations, rakes continue on their separate lines to and through dip tanks, in which each line receives a different colored paint coating. The complete P-D installation includes the 2-Pass Gas Heated Power Spray Washer, with room temperature blow-off, exhaust canopies, dip tanks and drain enclosures.

Savings effected here are obvious — not only does the washer conserve valuable plant floor space but, through the handling of two lines of parts, reduces by 50 per cent time that otherwise would be consumed in painting in separate colors.

Whatever your problems may be, you can depend, without any doubts, on the ability, service, quality and cost savings offered you by Peters-Dalton. More than a quarter century of designing, engineering, manufacturing and installing finishing equipment, of all types and sizes, assures you of finding the best and most economical way to meet your needs. Just write, wire or phone — we'll be glad to tell you more.

Representatives in Principal Cities

- *Hydro-Whirl Paint Spray Booths*
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PD **Peters-Dalton INC.**

A SUBSIDIARY OF DETROIT HARVESTER CO.

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Practical Applications . . .

The hoist and trolley used for conveying the parts through this process are products of Yale & Towne Manufacturing Co., Philadelphia, Pa. This installation was made at Gillette Safety Razor Co., Boston, Mass. Engineers of Gillette and Yale & Towne worked together to design and engineer the processing cycle for finishing safety razors.

The processing and plating tanks in the system are arranged in a long, oval pattern. Parts are processed in a large, perforated plastic barrel. The barrels are moved in and out of the tanks and between the tanks by six Cable King electric hoists with motor-driven trolleys mounted on a closed-loop track above the tanks.

Plating and processing of razor parts at Gillette is divided into four phases, three of which consist of several operations. The only manual handling of the parts is in loading and unloading the barrels.

In the first phase, the operator controls the hoist in raising and lowering the barrels and their travel from station to station by a pendant push-button control. When he lowers a load into a tank, the lower limit switch actuates a remote timer, which is preset to signal the end of any desired period, from three seconds to 20 minutes.

Every tank in the system is equip-

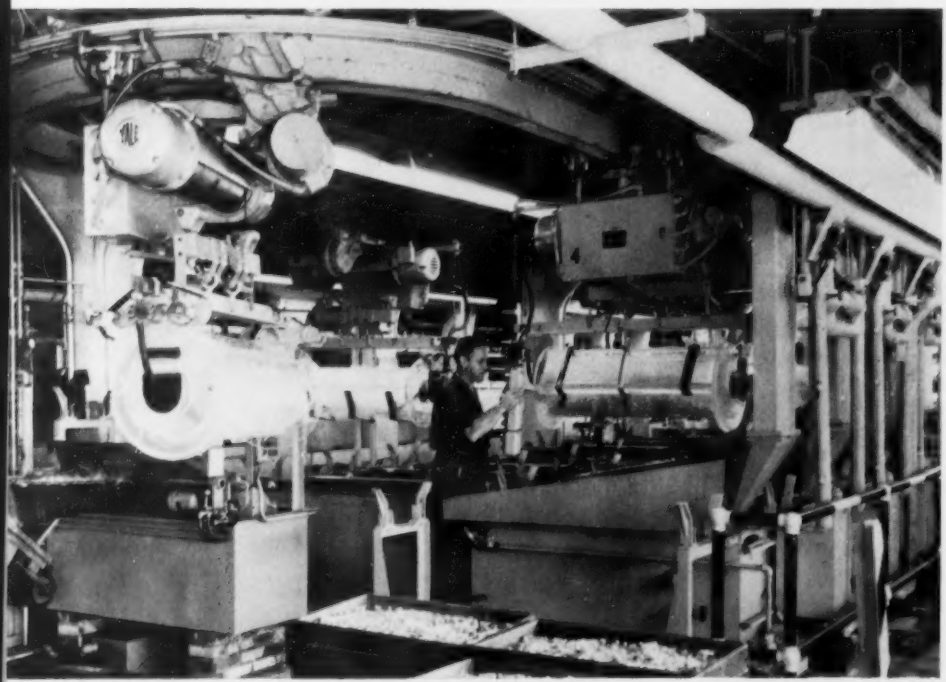
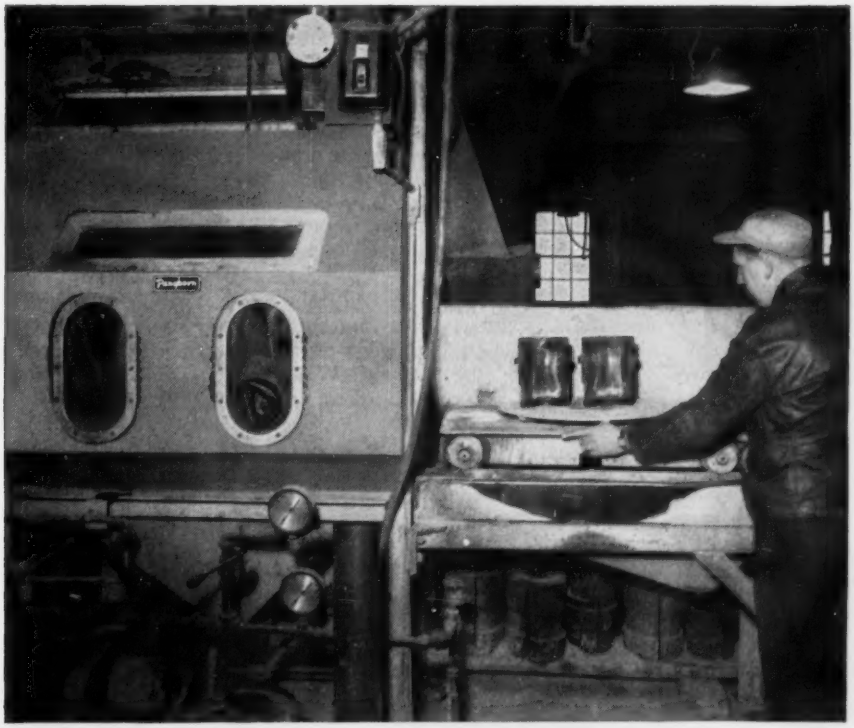


Fig. 1—The load of parts to be plated is cycled through the first phases of the plating process by manually controlling the Yale & Towne Hoist with push-button controls. Note the hoist in the foreground, which is automatically moving into the loading station.



Pangborn Hydro-Finish cut cleaning time 50% in this plant

Paid for itself in only six months

Pangborn Hydro-Finish really paid off for this leading glass manufacturer. Cleaning quality increased mold life 10% to 15% and total cleaning and polishing time was cut in half! The resultant savings paid for the machine in 6 months and represented a substantial weekly sum thereafter.

Today, through new design and use of air jet sluriators, Pangborn Hydro-Finish costs less originally, costs less to maintain and gives you easier handling and added efficiency.

Write for Bulletin 1403 to PANGBORN CORP., 5000 Pangborn Blvd., Hagerstown, Md.

USE PANGBORN HYDRO-FINISH FOR:

Deburring • Surface finishing • Finishing threaded sections • Improving cutting tool life • Maintaining dies and molds • Removing grinding lines • Removing heat treat scale • Preparing surfaces

Pangborn

BLAST CLEANS CHEAPER

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ped with a constantly turning gear wheel, which engages a gear on the barrel so as to rotate the barrel while it is immersed in the solution.

At the end of the preset time a signal light and bell tells the operator to move the load to the next tank.

Upon completion of the first phase of this processing cycle, the load begins a completely automatic cycle in another series of tanks. Two sequences of operations are possible in this, the second phase. By setting a switch on the pendant control the operator can start the parts through either of these cycles, depending upon the type of part being processed. The completely automatic system functions as follows: 1) the load is raised until it hits an upper limit switch; 2) the motor-driven trolley moves it over the first tank; 3) the load is lowered into the tank, where a lower-limit switch actuates an automatic timer; 4) when the preset time interval is over, the load rises from the tank and continues to the next tank, where the cycle is repeated. Certain tanks are automatically bypassed, according to the cycle desired. The barrel moves automatically through all the necessary tanks in this phase. When it has completed the treatment, a signal light and bell inform the operator that this barrel is ready to continue into the third phase, the plating operation.

Plating requires the longest immer-

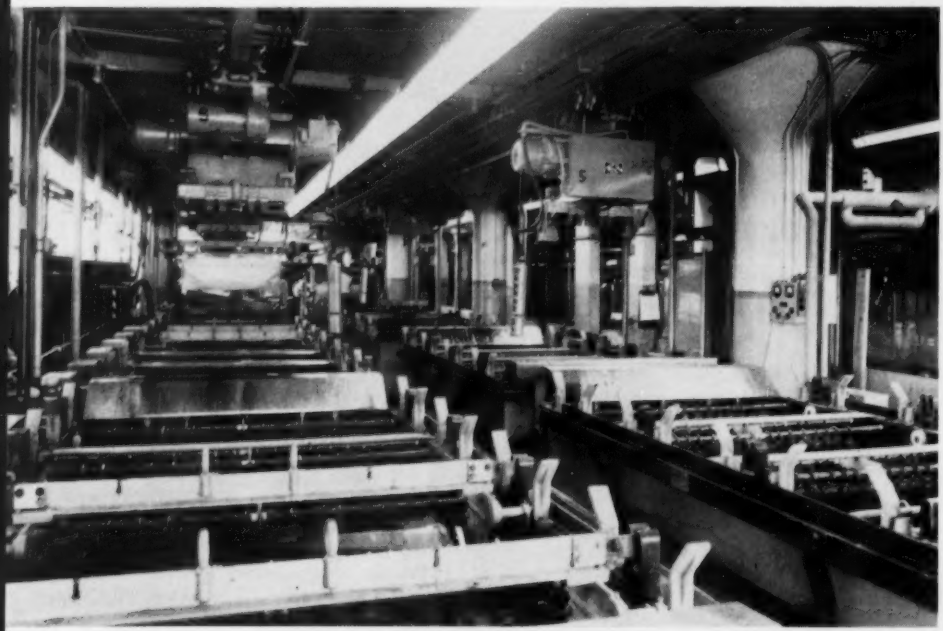


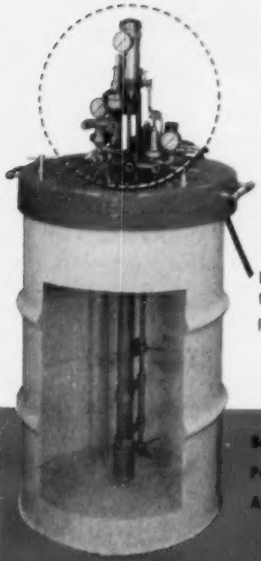
Fig. 2—Entire plating system is compact. In foreground are 12 plating stations. Hoist No. 6 is automatically cycling through the process prior to plating. On right of the photograph, hoist No. 5 is automatically moving the parts through the final processing tanks.

PUMP PAINT

DIRECT from original drums with this NEW air-operated

BALCRANK® Jet Power PUMP for paint

BALCRANK air-operated pumps are designed to meet all of the exacting requirements of the line circulating and other paint systems.



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Balcrank Paint Pumps have already established unique performance records. Our Engineering Staff can adapt this experience to your needs.

- Pump primer or finish materials at HOT or cold temperatures.
- Provide constant pressure and volume at spray guns without pulsation.
- Maintain continuous flow without pressure in or on the container.
- Supply up to 8 or more spray guns — either syphon or pressure type.
- Include air-operated propeller type agitator to insure uniform mixing.
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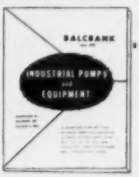
- Models for 55 gallon drums, with or without airlifts, 5 and 10 gallon pails or line systems out of storage tanks.

For over 50 years — Balcrank has served the Machine Tool and Automotive industries, specializing in pressure-pumping of oils, greases, viscous and abrasive materials.

NOW — Balcrank research and the best engineering skill have developed a greatly improved pump for paint and allied products. New design provides for trouble-free handling of ferrous oxide and other abrasives commonly affecting pump service.



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Industrial Pump Division
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50 YEARS of SERVICE

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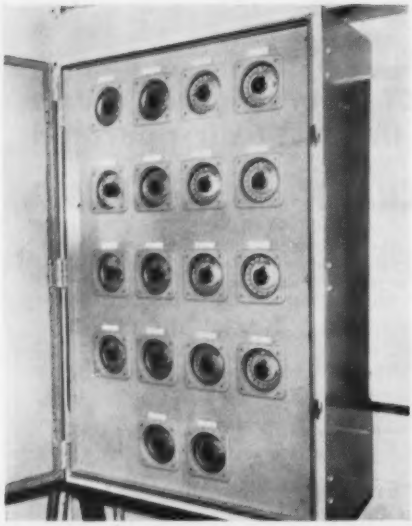

Fig. 3—The dials on this master controller permit changing the cycle times at any station to meet varying processing needs.

sion time of any step in the whole process; therefore the operator moves the barrel into one of the plating tanks by manual control and then disconnects the hoist, leaving the barrel in the plating tank while the hoist is used to pick up a load that has been plated and is ready to continue to the fourth phase. Completion of plating is automatically signalled by a light and a bell.

The parts, now ready to move into the fourth and final phase, are picked up by the hoist, which is manually controlled at this point. The operator sets the "automatic" button on the pushbutton station, which starts the parts through the final automatic cycle. This cycle consists of seven tanks. The parts must be immersed in each of these tanks for a different

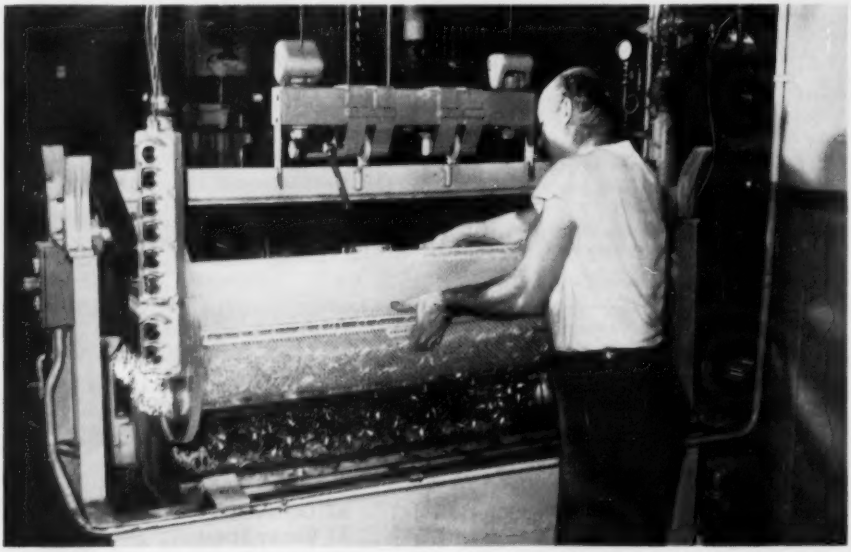

Fig. 4—At the end of the system, operator dumps finished, plated parts into a hopper, from which they will be transferred to a dryer. (Photos courtesy Yale & Towne Mfg. Co.)

Photo Courtesy Rack Processing, Co. Dayton, Ohio

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First name in plastisols for all plating purposes . . .

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length of time. The operator is signalled at the end of this sequence, and he moves the finished barrel load of razor parts to the unloading station. Here he dumps them into a hopper, which automatically transfers them to a dryer. From the dryer the parts are dumped into trays, ready for inspection and assembly.

It is impossible for the hoists operating through any part of the cycle to catch up with one another to cause a jam-up. If there is a hoist in the station ahead when the hoist behind has completed its automatic operation, the second hoist will remain in its station with the load in the lowered position until the station ahead is clear, then it moves forward automatically. This applies also when the first automatic cycle push button has been pressed at the end of the first phase.

Between the unloading and loading station there is room to store two empty hoists. After a barrel is unloaded, the operator pushes the "start" button on the control station and the hoist automatically moves to the loading station. If this station is occupied, the barrel will move into a storage space, where it waits until the loading station is open and then moves in automatically, ready to load.

Gillette has found that this system provides several advantages. It is fast, compact and flexible. It allows cycle changes and modifications by merely adjusting control circuits and timers. These

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Send us several pieces of the work to be stripped or test panels specially prepared if the work is unwieldy.

Thirty-six hours after receipt of the work, a report will be on the way back to you—by telephone if necessary.

Tag each part with name, date and essential problem details including requirements, as, hot and cold methods, tanks available, etc. Write separately, outlining problem, to whom report should go. No charge or obligation, of course.

The DuBOIS Co., Inc. Cincinnati • Los Angeles New York • Dallas

NEW PAINT STRIPPING CLINIC, CINCINNATI 3, OHIO

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circuits and timers, working in conjunction with travel-limit switches and upper and lower hoist-limit switches, control the movements of the Cable King hoist through the process.

The system in use at Gillette can be modified to include even further mechanization.

For more data circle **3** on Reader Service Card

FLUORINATED SOLVENTS. Technical booklet describes properties and applications of fluorinated hydrocarbon solvents in industrial cleaning, ranging from immersion and vapor cleaning of electrical motors and electronic equipment to general laboratory maintenance.

Booklet contains data on comparative performance of the fluorinated compounds, chlorinated solvents such as methyl chloroform, carbon tetrachloride, and trichlorethylene, and straight hydrocarbon solvents such as naphtha and gasoline. Fluorinated compounds covered specifically are "Freon" MF (trichloromonofluoromethane), "Freon" TF (trichlorotrifluoroethane), and "Freon" BF (tetrachlorodifluoroethane).

Separate sections of the technical booklet are devoted to a general discussion of solvent properties, including data on Kauributanol values of most commonly used industrial solvents; safety characteristics of the "Freon" solvents, including nonflammability and low toxicity; their effect on materials such as metals, elastomers, plastic materials, magnet wire coatings, paper insulation, surface coatings. **E. I. du Pont de Nemours & Co., Inc.,** Wilmington, Del.

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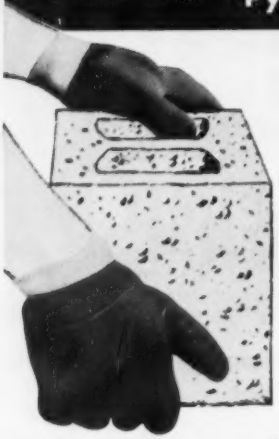

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Please send me:
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- ☐ 1956-57 PIONEER Industrial Glove Catalog.
- ☐ Hand Protection Clinic glove recommendation for job described in enclosed letter.

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CITY _____ ZONE ____ STATE _____
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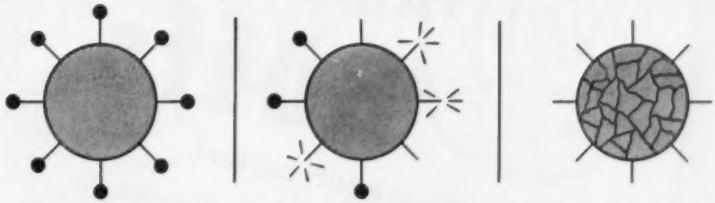
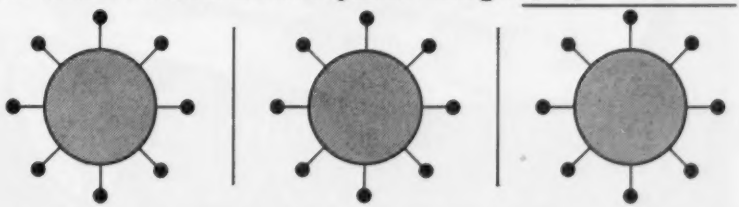
For more data circle **368** on Reador Service Card

Does the solvent you use go "sour," like this?



Use Nialk® TRICHLORethylene and get psp... like this



1. Stabilizers (small circles) protect your trichlorethylene against heat, light, air, moisture, acids, and such active metals as aluminum. At this stage NIALK stabilizer looks the same as the ordinary brand—but NIALK has psp.

2. Ordinary stabilizers wear out during use, leave solvent unprotected. NIALK stabilizer never wears out. Even after repeated distillations and reuse, it's there working. So you never have to titrate or add new stabilizer.

3. When all stabilizer is gone, bath "sours," making a cleanout necessary. Bath may even stain metal parts. Avoid such damage and minimize downtime by using NIALK TRICHLORethylene with psp—permanent STAYING power.

Why you pay less to degrease with Nialk® TRICHLORethylene

You can cut the number of cleanouts of your degreaser when you use NIALK TRICHLORethylene. And you can degrease more parts between cleanouts.

NIALK has a unique stabilizer with **psp**—permanent STAYING power. It's neutral, non-alkaline, non-salt-forming. You never need replenish it.

This NIALK stabilizer actively retards the formation of degradation products—so you can clean your bath easier, faster.

Get proof of NIALK's *cheaper, safer degreasing*—Write on your business letterhead for a resumé of tests made on five leading brands.

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WILLIAMSVILLE Buffs

do the job better!

Custom designing to fit all types of buffing requirements.

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Cut off any size piece to use as needed.

IN BULK
Cut and folded. Ready to use.

STAYS SOFT AND TACKY — A SPECK-FREE FINISH EVERY TIME

Now Available in Rolls or Cut Bulk—White or Gold
In Three Different Types of Cloth

Get your Tack Cloth packed just the way it's easiest for you to use . . . either in 150 yard rolls of 36" wide cloth or in handy cartons . . . 100 or more Tack Cloths to the carton.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up!

The Cut Bulk size is 18" x 36" . . . folded to 4½" x 18" for ease of handling. ALL BOND TACK CLOTH is *Spontaneous Combustion Proof, Lint-Free* and *Wax-Free*. Gives a sparkling speck-free Finish *every time*. Clean and sanitary. No waste.

TRY THEM and COMPARE RESULTS. Samples Gladly Sent Upon Request.

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ALSO INDIVIDUALLY PACKED IN GLASSINE ENVELOPES —144 to the Carton

A WARRANTY OF SATISFACTION IN EVERY CARTON

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Used Throughout the Plating Industry

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MICCROSOL . . .
Today's outstanding heat-cured rack coating that provides positive insulation and protection, amazing tensile strength and scuff resistance, permanent flexibility, and positive, continuous adhesion.

MICCROTAPE . . .
An extruded tape that offers unexcelled protection for plating racks, and for masking parts prior to selective plating.

MICCROTUBE . . .
An extruded tubing especially suited for use on straight or bent contact wires, and for selective plating of simple parts.

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A synthetic air-dry rack coating for all plating cycles and phosphate coatings—highly resistant to all plating solutions.

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For masking of machined parts for all plating cycles. Hairline demarcation . . . extreme accuracy.

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For masking of machined parts for hard chromium plating. Provides complete protection—assures extreme accuracy.

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Specifically designed to supply the need for a stop-off lacquer that can be peeled easily from the part after plating, and will hold a hairline demarcation through all plating cycles.

MICCROLAC . . .
Mirror-finish, water-white lacquer that protects and beautifies the finest of polished or plated metals.

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A blend of the new fast solvents for the quick, easy removal of stop-off lacquers in selective plating.

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Industrial corrosive-resistant coating for use on all plating equipment, rinse tanks, structural steel, walls, floors, pipe lines, air ducts, etc.

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Two widely used waxes for selective stop-off, especially suited for masking on complicated parts and sharp edges. C-662 for hard chromium, C-600 for high-temperature cycles.

Samples and descriptive literature of all Miccro Products will be sent upon request.

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ELECTRO POLISH

production pieces *faster—better* with

Electro-Glo SOLUTIONS

- ✓ Polishes—Deburrs—Levels
- ✓ Saves Time—Labor Costs
- ✓ Improves Product Appearance
- ✓ Sold as a Concentrate
- ✓ Used with Standard Plating Equipment

Electro-Glo electropolishing is the modern, economical finishing method in which a fractional amount of metal is removed rather than deposited as in plating. Electro-Glo comes to you as a concentrate, and you purchase the balance of the solution locally. It is used in conventional plating equipment.

Electro-Glo does a multiple job. Deburring, leveling, and polishing take place simultaneously. Any degree of brightness is easily obtained. Electro-Glo concentrates process Copper Alloys, Stainless Steel, Carbon Steel, and less common metals and alloys.

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Engineering service available. Sample piece electropolished by the Electro-Glo method without charge. Equipment layout and cost analysis furnished. Special methods and finishes developed. Send for full details.

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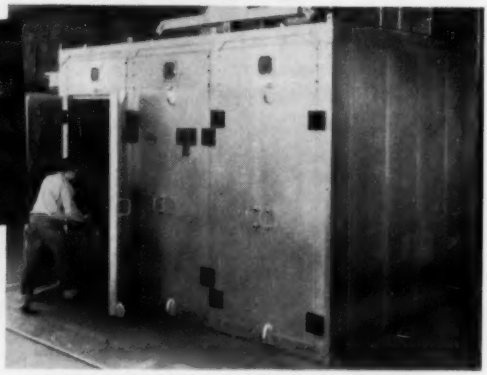
You're SURE of UNIFORM Drying—FAST

ROCKWELL *Recirculating* OVENS



Uniform distribution of controlled, high velocity, recirculated, heated air assures faster drying or baking at precise temperature.

Investigate the oven with the built-in heating "know-how." Write for Catalog.

Made in wide range of standard electric-, gas-, oil- or steam-heated, cabinet, rack or truck types and in special batch or conveyor types.

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PRECIOUS METALS PROCESSES

BRIGHT GOLD† — Mirror-bright finish in any thickness directly from the bath.

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SILVER SOL-U-SALT — non-dusting — safest and easiest to use.

BRIGHT RHODIUM — Brilliant, fine-grained, non-tarnishing deposits.

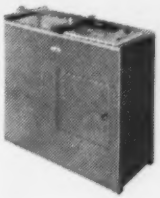
SILVREX BRIGHT SILVER* — Crystal-clear solution that produces mirror-bright deposits.

PUR-A-SALTS* — Restore contaminated cyanide plating baths to full, trouble-free operation.

† *Patent Pending.* * *Patented.*

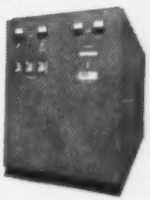
JET PLATER

A complete, versatile, small-volume plating unit for precious metals plating. Incorporates a built-in rectifier with timer and other automatic features for high speed, quality work.



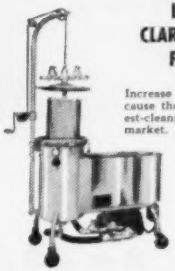
CUSTOM-ENGINEERED SELENIUM • GERMANIUM PLATING RECTIFIERS

Custom-built to your requirements at the price of ordinary mass-produced equipment.



LIQUID CLARIFICATION FILTERS

Increase production because they are the fastest-cleaning filters on the market.



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Manufacturers of Exclusive Precious Metals Processes, Metallic Power Rectifiers, Airborne Power Equipment, Liquid Clarification Filters, Metal Finishing Equipment and Supplies.

Offices: Detroit—Chicago—Los Angeles

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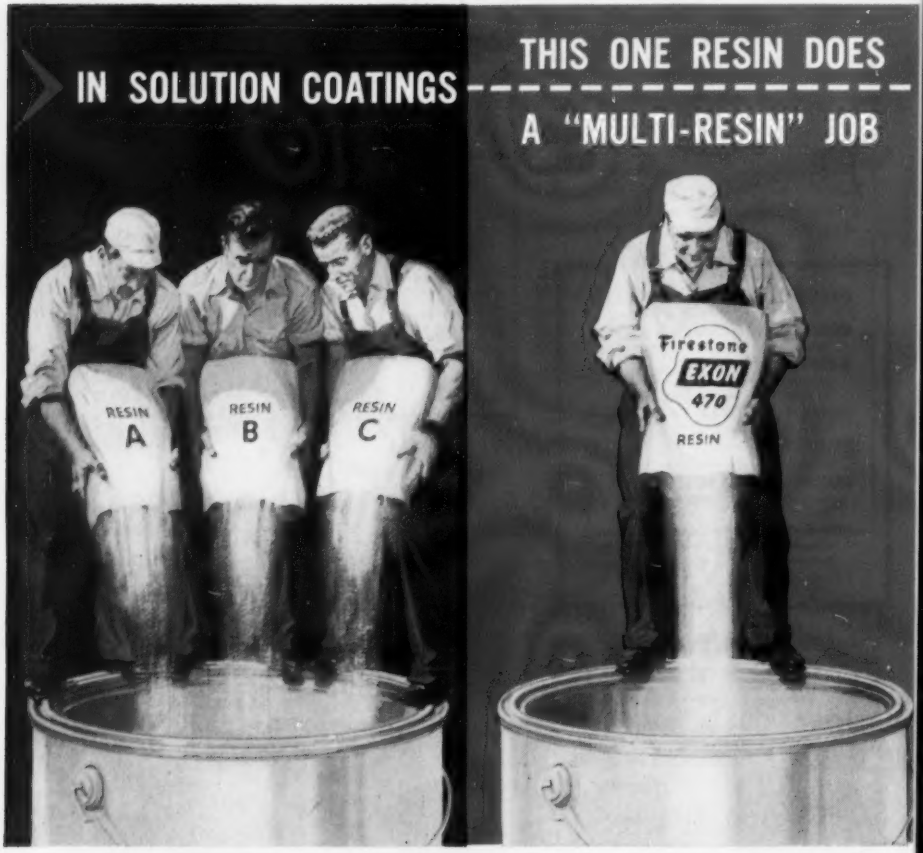
Another way Exon Vinyl Resins pin-poin



Firestone

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IN CANADA, CONTACT CHEMICAL SALES DIVISION, FIRESTONE TIRE AND RUBBER COMPANY OF CANADA LTD., HAMILTON, ON

INDUSTRY'S MOST COMPLETE LINE OF VINYLS ENGINEERED TO YOUR SPECIFIC NEED

he right answer for solution problems

EXON 470 . . . specifically for protective coatings at lower costs

More manufacturers of solution coatings have discovered that Exon 470 simplifies processing and lowers costs. You no longer need several resins. Exon 470 combines the best properties of them all.

You get excellent adhesion to metals, alkyd and vinyl surfaces . . . compatibility with a wide range of drying oils, alkyds, phenolics and melamines...plus high solubility in inexpensive solvents.

Exon 470 is just one of Firestone's 6 versatile solution resins. They vary in properties, because each is engineered to pin-point the answer to a specific solution problem. For instance, both solubility and adhesion factors fit the precise needs of various applications. All 6 Exon solution resins give you greater resistance to chemicals, abrasion, corrosion and weather.

No wonder more manufacturers of solution coatings turn to Firestone to solve their production problems. Consider your own. Then, for the solution resin with properties pin-pointed to the best answer for you, check with Firestone.

Here are 5 More Solution Resins Engineered for Successful Coatings

EXON 450 Ideal for strip coatings. Good solubility, tensile strength and durability.

EXON 461 A unique fluorine-containing resin combining high solubility, unusual chemical resistance, heat stability and weatherability.

EXON 471 Excellent for weatherability and durability in a protective coating. Corrosion resistant. No measurable change after sunlamp exposure for 360 hours as 1 mil film.

EXON 481 Makes possible colorful, abrasion-proof, washable coatings that resist fading or cracking.

EXON 485 For superior strip coatings. Lower viscosity makes application easier and shelf-life better. Good clarity.

For more data circle **376** on Reader Service Card

New Equipment, Materials, Processes

Cleaning
Polishing
Plating
Paint Finishing

Cleaning Machine

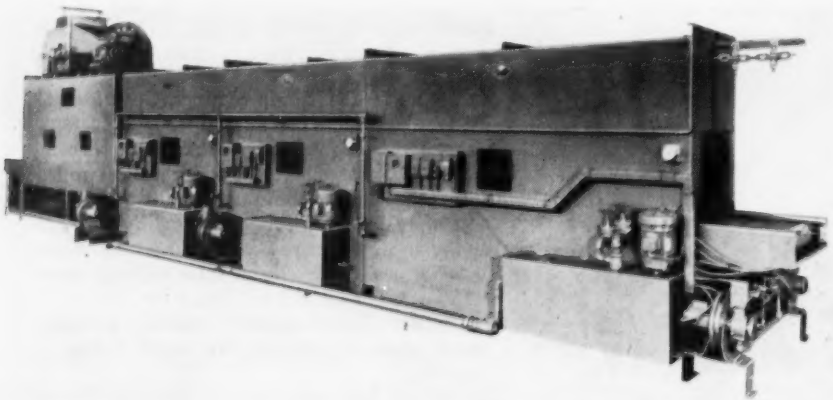
An automatic cleaning, phosphate coating and drying machine designed to handle a wide variety of metal stampings has recently been introduced by The Alvey-Ferguson Co., Cincinnati, Ohio.

Designated the "Siamese Twin" Model CP, the machine incorporates both an overhead conveyor and a wire-mesh-belt conveyor to carry stamped parts through the automatically-timed cycles; thus the Alvey-Ferguson machine can meet the varying requirements of different stampings as to vertical or horizontal handling. The two conveyors can be operated simultaneously or independently.

The machine has a single tunnel through which the two conveyors pass; common solution tanks and spray system; and common headers for water and drains.

Vertical immersion pumps are employed. Individual pressure-type gas burners are used to maintain proper temperatures in each solution tank.

Descriptive literature will be sup-



Alvey-Ferguson automatic cleaning machine has both overhead- and belt-type conveyors.

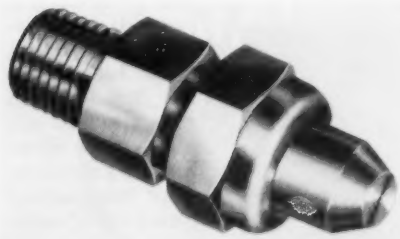
plied on request to The Alvey-Ferguson Co., Dept. PF, 1443 Disney St., Cincinnati 9, Ohio.

For more data circle 4 on Reader Service Card

★ ★ ★

Small-Capacity Nozzles

A group of Full Cone spray nozzles developed by Spraying Systems Co. provides extremely small capacities and atomizes using hydraulic pressure only.



Spraying Systems' Small-Capacity Nozzle

Twelve different nozzles are offered, in both male and female pipe connections, in capacities ranging from 0.042 g.p.m. to 1.400 g.p.m. at 20 p.s.i.

The full-cone spray pattern of the nozzle is uniform in distribution and the spray angle ranges from 50 to 67 degrees as capacity increases.

For complete information write for TG Full Cone Spray Nozzle Data Sheet 4517, which may be obtained from Spraying Systems Co., 3229 Randolph St., Bellwood, Illinois.

For more data circle 5 on Reader Service Card

★ ★ ★

Spray-Decorating Machine

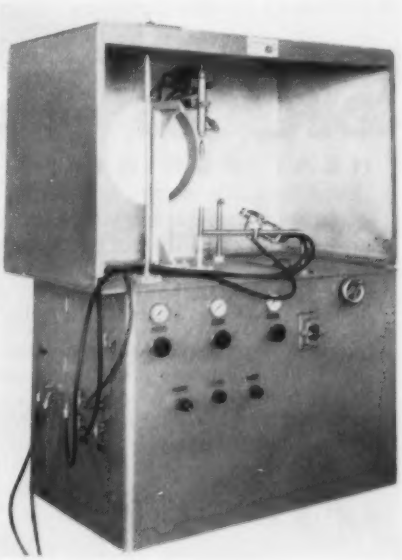
An automatic spray-decorating machine, mask washer and spray booth in one "package" has been introduced by Conforming Matrix Corporation.

The unit is designated as SSIOG-WB. It includes a washer for cleaning the paint masks, and a spray booth with an opening provided for connection with an exhaust system.

The machine is completely air motivated. The spindle rotates from 40 to 400 r.p.m. and the length of spray is dial regulated. The spindle and guns, actuated by foot pedal, stop automatically as predetermined by dial setting. The speed of operation is dependent upon loading time, and inasmuch as the painting operation is automatic, the operator has both hands free for loading and unloading.

The position of the two guns is adjustable and three or four guns may be employed, if so desired.

The mask washing machine permits one mask to be washed while the operator uses another in spraying. The washer reduces the danger of solvent-washing in open tanks or pans containing volatile solvents, and protects employees from possible health impairment. Damaging of fine wire bridging on masks by hand scrubbing is also averted. Masks are immersed



Conforming Matrix Spray Decorating Machine includes booth and mask washer

in the solution in a wire basket provided for that purpose. Cleaning action is by propeller agitation of the solvent. Dimensions of the unit are: 72 by 57 by 34 inches.

A brochure is available from Conforming Matrix Corp., 356 Toledo Factories Building, Toledo 2, Ohio.

For more data circle **6** on Reader Service Card

Processes for Finishing Magnesium

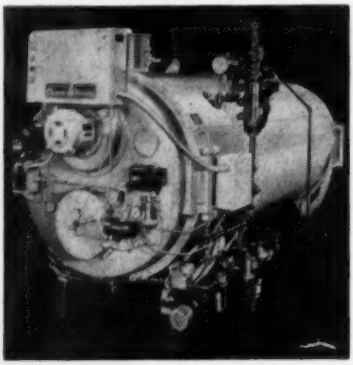
Development of two magnesium finishing processes has been announced by Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

The single-package Turco Processes are designed to improve corrosion resistance, abrasion resistance and paint bonding properties of magnesium.

Turcoat 4245-2F is a production-line process for providing corrosion resistance, paint base qualities and abrasion resistance to all forms and alloys of magnesium. The one-package powdered material is merely mixed with water. The same solution may be used for processing by either direct or alternating current. Hexavalent chromium is the only control required, and the bath is brought back to strength by addition of the original material.

Turcoat 4091 is a liquid process for touching-up coated magnesium that has been scratched or abraded. The process, which does not require electrical current, is also used where assemblies are too large to be im-

PROTECTS this BOILER better than any other finish!



Sicon® SILICONE

HEAT RESISTANT FINISH

● SICON gray and SICON Maroon are used on all models of the "CB" line of packaged boilers, manufactured by Cleaver-Brooks, Milwaukee. SICON retains its color and gloss in the range of 500° F., far above the hottest skin temperatures of the boiler.

SICON is easy to apply—one sprayed on coat does the job. It dries fast, and protects the surface for the life of the unit. If your product generates sustained heat you need SICON, *the finish that has stood the test of heat and time.* Write today!

MIDLAND *Industrial Finishes Co.*

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BEDE AIRLESS... A BETTER WAY...

a simpler solution to your maintenance *PAINTING PROBLEMS*

Meet the "rising maintenance costs" problem head on! Spray painting without air can help cut maintenance and production painting costs as much as 50%. For more information on Bede Airless spray painting equipment and detailed information on this new process, write today.

INQUIRE ABOUT OUR AIRLESS TRAINING SCHOOL. NO TUITION. OPEN TO ALL.

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AIRLESS SPRAY COATING EQUIPMENT AND PAINT HEATERS

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For more data circle 378 on Reader Service Card

mersed. Used as received, the compound is brushed or sprayed onto the surface to be coated. Turcoat 4091 is also recommended for use in a dip tank to replace chrome pickle.

For literature on both Turco Processes write Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

For more data circle **7** on Reader Service Card

It's NEW!
3000 SERIES
BURR-RITE Sr.
NEW MACHINE
NEW MEDIA
Reduce Your Deburring Costs
● Is DEBURRING required on your products? Do you realize the savings that can be made by the Barrel Finishing process? Write us today and get full details about this new, improved machine. SEE its value on your parts . . . Send samples for free processing today.
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Barrel Finishing Equipment • Media • Compounds

For more data circle **379** on Reader Service Card

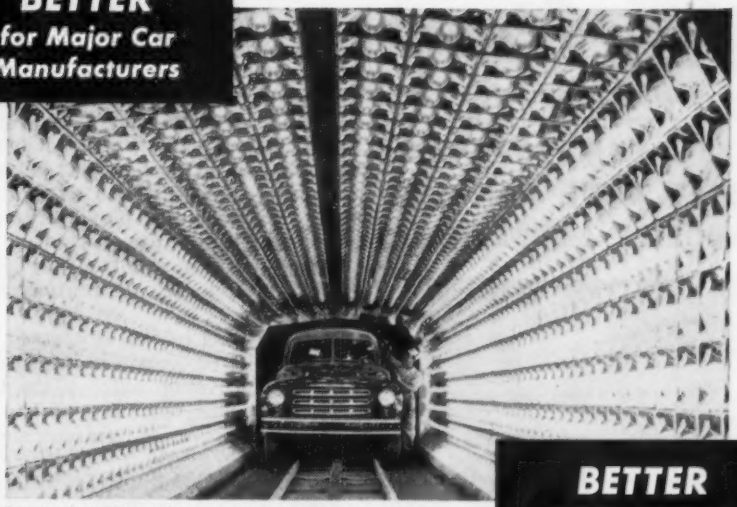
Film-Hardness Tester

Surface hardness of a finishing material is one of the many properties of organic and inorganic paints which is directly related to consumer satisfaction. A hard film on a piece of office equipment, or an automobile fender, or the side wall of a railway coach is essential if a satisfactory appearance is to be maintained over an extended period.

In some cases, surface hardness influences production costs. Manufactured articles using organic finishes are often crated for shipment. If the finish on the article lacks surface hardness, particularly initial surface hardness, the crating or packing material coming into contact with the finished surface may leave a tell-tale scar unless a specially constructed, higher-cost type of package is used.

The Tukon Hardness Tester, a product of the Wilson Mechanical Instrument Division, American Chain & Cable Company, Inc., Bridgeport, Conn., is one of the more commonly used laboratory instruments used for determining the hardness of films.

BETTER
for Major Car Manufacturers



Fostoria Industrial Infrared Ovens are used by every major car manufacturer in more than 300 automotive installations.

BETTER FOR YOU!

In the automotive industry
MILES OF OVENS . . . BY FOSTORIA
give top-quality results . . . *at lowest cost!*

Don't take *our* word for it—look what's been happening in the highly competitive automotive industry. Today, the customer list for FOSTORIA RADIANT OVENS reads like a "Who's Who" among automotive manufacturers. The list of FOSTORIA users includes *all* of the major car and truck manufacturers in this country. It also includes many automotive component part manufacturers and assembly plants overseas. These companies are ordering and *re-ordering* FOSTORIA Ovens . . . and have been for years! The reason behind FOSTORIA's position of leadership is clear. FOSTORIA is the world's oldest and largest manufacturer of industrial infrared ovens—with unrivalled application "know-how" and experience in engineering *all three major types* of industrial infrared equipment, from components to complete ovens—Quartz Lamp, Radiant Rod and Conventional Infrared Lamp. An experienced FOSTORIA sales engineer is ready to help *you* achieve important savings with FOSTORIA RADIANT OVENS too.

Call him today and take advantage of these specialized services. There's no obligation.

Write for a free copy of "Applications Unlimited," a fact-filled booklet of cost-saving information on Radiant heating.

INFRA-RED fostoria SYSTEM

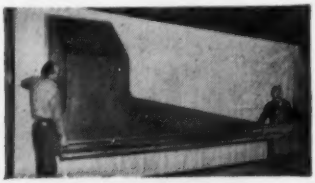
THE FOSTORIA PRESSED STEEL CORPORATION, Dept. 622, Fostoria, Ohio

For more data circle **380** on Reader Service Card

HAVEG News

Wherever CORROSION RESISTANCE is a Factor

HAVEG FUME SYSTEMS RESIST WIDE RANGE OF CORROSIVE ATMOSPHERES



Low cost installations of Haveg polyester glass fume ducts, hoods, fans and fittings assure positive removal of corrosive process fumes up to 350° F. Fume stacks and ducts from 6 inches to 12 feet in diameter and over 200 feet high may be flanged for quick assembly in the field—or resin-welded in a single unit! Haveg fume systems require only minimum support—are completely unaffected by weather or climatic conditions!

Whatever your fume removal problem, there's a Haveg plastic to provide the most economical and efficient system to meet your requirements. Discuss your needs with a Haveg engineer . . . or write for Bulletin F-7.

H-601R

HAVEG PLASTICS OF TOMORROW SOLVE YOUR CORROSION PROBLEMS TODAY

HAVEG INDUSTRIES, INC.
914 GREENBANK ROAD
WILMINGTON 8, DELAWARE

For more data circle 381 on Reader Service Card

In the Tukon test, which is generally conducted by a laboratory worker, a diamond-pointed indenter is applied under a constant load of 25 grams for a fixed time against the paint film. The length of the resulting impression is then measured with a microscope having a calibrated filar eyepiece, and the filar units are converted to a Knoop hardness number. The 25-gram load and the lens calibration remain constant.

Paint films in the laboratory range from 0.1 to 50 Knoop in hardness; the higher the Knoop number, the harder the film. The thickness of the paint film at the point of hardness measurement is measured and recorded since the length of impressions may be proportioned to film thickness.

Chemist checks hardness of paint finish using the Tukon method of determining hardness

For more data circle 8 on Reader Service Card

★ ★ ★

Polishing Machine

A machine for finishing sheet and coil stock recently introduced by Clair

IN AND OUT

Is All It Takes To —

• DRY

• PROTECT

For those plating silver, brass, or copper —

Merely out of the last hot water rinse, and in and out of Nikolas **Water Dip Lacquer,** removes all traces of water and deposits a durable transparent coating that will resist fingerprinting, tarnishing and mild scratches that have previously involved unnecessary rejects.

For those using plated parts in production —

Parts finished with Nikolas **Water Dip Lacquer** assure you of untarnished parts, less rejects, and the necessity of ultra careful handling. If the final operation calls for soldering, no preparation is necessary, as the coating provides a chemically clean base metal that assures perfect bonds.

FOR COMPLETE INFORMATION ON

WATER DIP LACQUERS

CALL, WIRE OR WRITE

G. J. NIKOLAS & CO., INC.

Manufacturers of Finest Lacquers Since 1890

2880 WASHINGTON BLVD.
BELLWOOD, ILLINOIS

33 GRAND ST.
BROOKLYN, N. Y.

For more data circle **382** on Reader Service Card

Manufacturing Co., Inc., Olean, N. Y., is the result of four years of development efforts devoted to designing a machine that would solve common production problems.

The machine incorporates a flexible, integral pinch-roll feed capable of handling material up to 2 inches thick at a rate of feed variable from 16 to 66 f.p.m. In addition to conventional surface-finishing operations, from "roughing" through production of quality bright or satin finishes, this machine is said to be especially suitable for use in printed circuit applications and mechanical delusterization of unsupported plastic films.

Special attention was given to safety in designing this machine. Low-voltage automatic-control circuits include eight methods of guarding the machine against physical hazards, entry of foreign material, jammed work and so on. These automatic controls are supplemented by three independent manual means of stopping the machine. The pendant master control station is hung from a boom that may be swung to any position that is convenient for the operator.

Model 209 incorporates other features common to Clair polishing machines. Constant pressure on the spindle is obtained by a compressed air mechanism used to control pressure. It is adjustable to any contact pressure. The spindle or back-up roll may be changed in two minutes. The position of

MUD-SLINGING ONLY RESULTS IN LOST GROUND!

There always has been, and we believe always will be, ample room for ourselves and our competitors in the field of Metal Finishing Products. The best sales talk is the record of performance established by the products themselves.

One of our best performers in the Metal Cleaning Field is - -

APEX "RPS" Cleaning Compound

- - designed for heavy duty soak and electrolytic cleaning of ferrous metals. Its versatility and exceptional free rinsing characteristics have made it a plating room standby.

Your Inquiry Will Be Appreciated

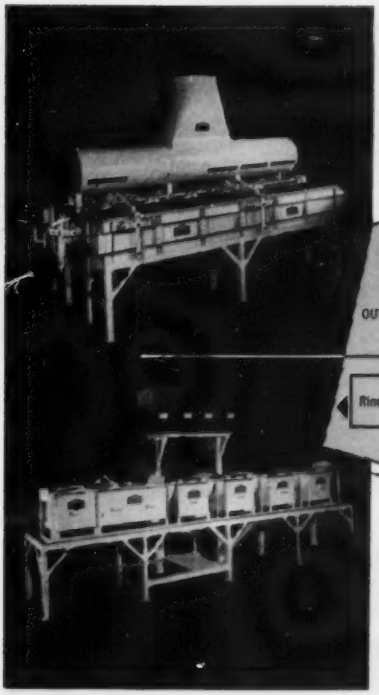
Apex ALKALI PRODUCTS CO.

A complete line of Cleaning Compounds for the Metal Finishing Industry

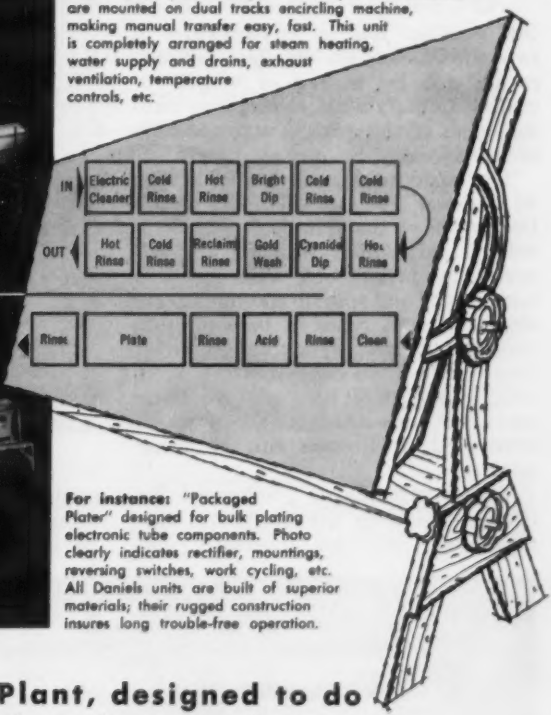
Main and Rector Streets • Philadelphia 27, Pa. • IV 3-3939

SYRACUSE BOSTON DETROIT ATLANTA PITTSBURGH WEST HARTFORD

For more data circle 383 on Reader Service Card



For instance: This 12-station machine for gold plating small electric meter parts. Unique in that cylinder assemblies are mounted on dual tracks encircling machine, making manual transfer easy, fast. This unit is completely arranged for steam heating, water supply and drains, exhaust ventilation, temperature controls, etc.



For instance: "Packaged Plater" designed for bulk plating electronic tube components. Photo clearly indicates rectifier, mountings, reversing switches, work cycling, etc. All Daniels units are built of superior materials; their rugged construction insures long trouble-free operation.

YOUR Plating Plant, designed to do your work and yours alone

-at a cost that will surprise you!

DANIELS custom-packaged plants, completely self-contained, are usually designed around a complete cycle. Their compactness results in conspicuous savings on installation cost, floor space — and fewer rejections because you get uniform production and high quality control.

FREE: Write today on your letterhead for illustrated booklet describing Daniels Custom Packaged Platers—and Daniels standard plating barrels too.

41 years of dependable service

DANIELS PLATING BARREL AND SUPPLY CO.

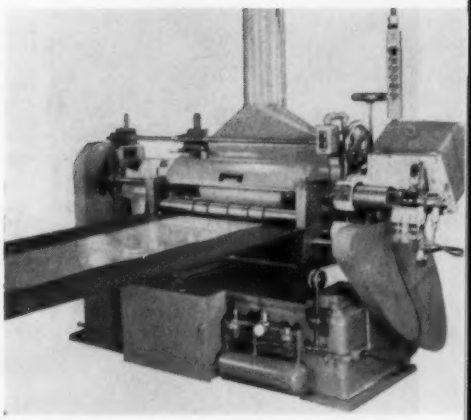
129 Oliver Street, Newark 5, N. J. • MArket 3-7450

For more data circle **164** on Reader Service Card

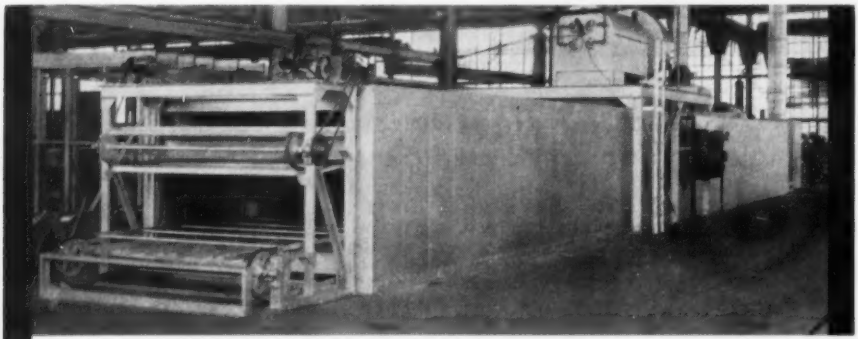
the back-up roll is adjustable in two directions. All machine adjustments are by means of wheels or cranks. Contact with leading and trailing edges of the work is automatically synchronized.

The basic machine is available with 26 optional features or modifications. Oscillation of the spindle from side to side is adjustable from 25 to 300 cycles, for instance. A wide choice of horsepower and spindle speeds is available. Different types of back-up rolls may be obtained. Synchronized power take-offs to drive conveyors are available; a removable auxiliary discharge pinch-roll assembly and automatic compound applicators can be incorporated.

Where multiple or progressive finishing operations are necessary, supplementary stations, integrally controlled by a master control, and incorporating identical interchangeable components, are available. They may be installed on the front or rear of



Clair Model 209 Polishing Machine: for finishing sheet and coil stock more efficiently



▲ *A continuous Double Strand paint drying oven with gas fired, recirculating air heater.*

carl mayer DRYING OVENS

• Guaranteed Uniform Temperature
• Long, Trouble-free Service

THE CARL MAYER CORP.

3030 EUCLID AVENUE • CLEVELAND 15, OHIO

A Few of Our Customers . . .

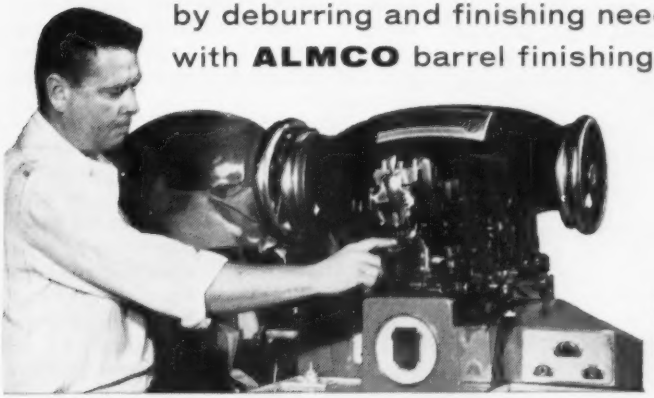
American Radiator Co.
Bendix Aviation Co.
Ford Motor Co.
General Electric Co.
General Motors Corp.
Glidden Co.
Mullins Mfg. Co.
North Electric & Mfg. Co.
Rheem Mfg. Co.
Westinghouse Electric Co.

For more data circle **385** on Reader Service Card

FINISHING ENGINEER AT LANDIS MACHINE CO. REPORTS . . .

"We cut costs from 55^{00} to 55¢ per 100

by deburring and finishing needle plates with **ALMCO** barrel finishing equipment"



MR. JAMES W. DUNFORD, finishing engineer at Landis Machine Co., St. Louis, indicates needle plate in Landis shoe repair machine.

BEFORE AFTER

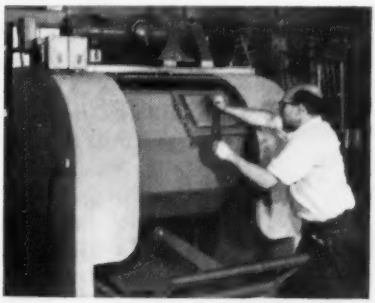
ONE OF THE MOST SUCCESSFUL barrel finishing applications on record at Almco is the needle plate deburring and finishing at Landis Machine Company.

Needle plate forgings are drilled and broached and then carefully deburred. Formerly the tough burrs were removed by hand filing at a cost of $55.00 per 100.

NOW, AN ALMCO MODEL DB-200 barrel finishing machine performs the same operation at a cost of 55 cents per 100, *a savings of 99% over previous costs!*

Landis engineers have applied the Almco method to other parts until the company is now barrel finishing several hundred different parts to high quality standards. Rejects are practically non-existent.

IN SCORES OF PLANTS, Almco equipment and processes are used for descaling, degreasing, grinding, burnishing, work-hardening, rust-inhibiting, etc. Write for address of Almco sample processing lab or branch office in your area. Your sample parts will be processed promptly to your specifications. No obligation for complete report!



Operator at Landis Machine Co. prepares for parts deburring run in Almco barrel finishing machine.

SEND FOR FREE 52-PAGE BOOK

Full of facts and processes on barrel finishing. Includes detailed cost chart on finishing of typical parts. Send for your copy today.

ALMCO

DIVISION OF QUEEN STOVE WORKS, INC.

86 Marshall Street • Albert Lea, Minnesota

Sales and Engineering Offices in Chicago, Detroit, Los Angeles, Newark, New Haven, Philadelphia and London, England

For more data circle 186 on Reader Service Card

the machine. These auxiliary stations may be specified for coverage of either the top or bottom surface of the work.

This model measures 9 feet, 9 inches wide, 4 feet, 4 inches deep, and 5 feet, 2 inches high (7 feet, 8½ inches high, including the pendant control boom). Patents are pending on this machine.

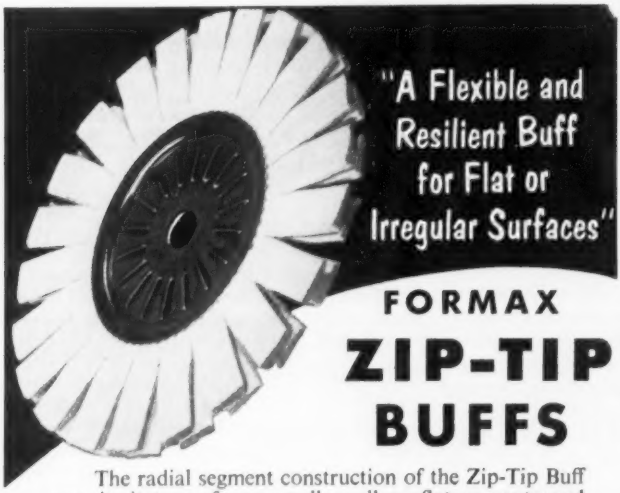
For more data circle 9 on Reader Service Card

Steam Cleaning Apparatus

Development of the Turco Steamerette—an injector unit that uses existing steam supplies for steam cleaning, paint stripping, phosphatizing or sanitizing has been announced by Turco Products, Inc., Los Angeles manufacturer of industrial chemical processing compounds.

The Turco Steamerette is easily operated, requiring only the adjustment of one valve. It will operate anywhere in the range of 40-140 p.s.i. steam pressure and it has a powerful impinging force at all pressures within this range. A built-in pressure gage indicates the operating pressure. Quantity and pressure of solution at the nozzle may be varied to provide every type of delivery, from a slow full stream at moderate temperature, to a hot driving blast for heavy cleaning.

The steam gun is easy to install and economical to maintain. Since there are no pumps, motors or complicated equipment, maintenance is minimized. The unit will not clog or overheat, even under adverse operating condi-



FORMAX
ZIP-TIP
BUFFS

The radial segment construction of the Zip-Tip Buff permits it to perform equally well on flat or contoured surfaces. The cross-cutting movement of the spoke-shaped segments prevent work streaking while it breaks up straight-line patterns on the surface.

- Zip-Tips are available in a wide variety of all cloth constructions—also combinations of cloth and sisal.
- Zip-Tips are made of heavy-duty, bias-cut materials mounted on ventilated steel centers.
- Zip-Tips are extra thick and provide wider buff faces with greater compound retention capacity.
- Zip-Tips are perfectly balanced—require no raking.

Write for Descriptive Literature

FORMAX MFG. CORP.
DETROIT 7, MICHIGAN
"THE FOUR McALEERS"

For more data circle 387 on Reader Service Card

Low-Cost Walker Rectifiers Can Solve your Electroplating and Anodizing Problems

- ***Walker Work-Saver Feature***
- ***No Moving Parts***
- ***Dependable***
- ***Efficient***

With the quality-made Walker Rectifier —Silicon, Germanium, Selenium — you get the rectifier that's built for long years of trouble-free life. And, the Walker Work-Saver feature automatically cuts current back to a pre-determined level whenever necessary to prevent work spoilage.

Engineered to deliver maximum service at minimum cost, Walker Rectifiers have a power factor of 97% and a D.C. ripple of about 4%.

Quality-made Walker Rectifiers are designed and manufactured to the highest standards. With no moving parts, there's nothing to wear out, nothing to get out of adjustment.

THE Walker DIVISION NORMA-HOFFMANN BEARINGS CORPORATION

with Walker Rectifiers

Mail this coupon now and get full details on why you get more for your dollar

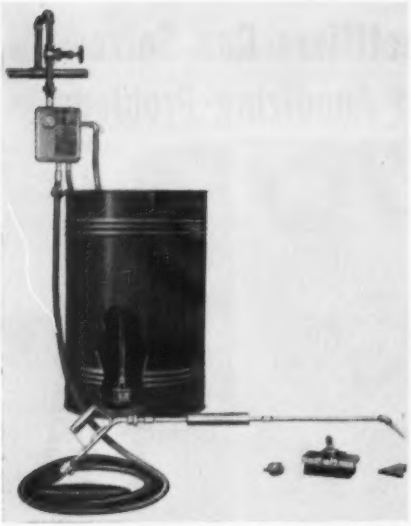
THE WALKER DIVISION
NORMA-HOFFMANN BEARINGS CORPORATION
STAMFORD, CONNECTICUT

Please send me complete details on your rectifiers.

NAME ..... COMPANY .....

ADDRESS ..... CITY ..... STATE .....

For more data circle **388** on Reader Service Card



Turco Steamerette: steam cleaning, paint stripping, phosphatizing, other applications

tions, the manufacturer states. Easily portable, it can be disconnected for use in other parts of the plant.

A four-page folder showing typical Steamerette applications and outlining specifications is available from Turco Products, Inc., 6135 South Central Ave., Los Angeles 1, Calif.

For more data circle 10 on Reader Service Card

★ ★ ★

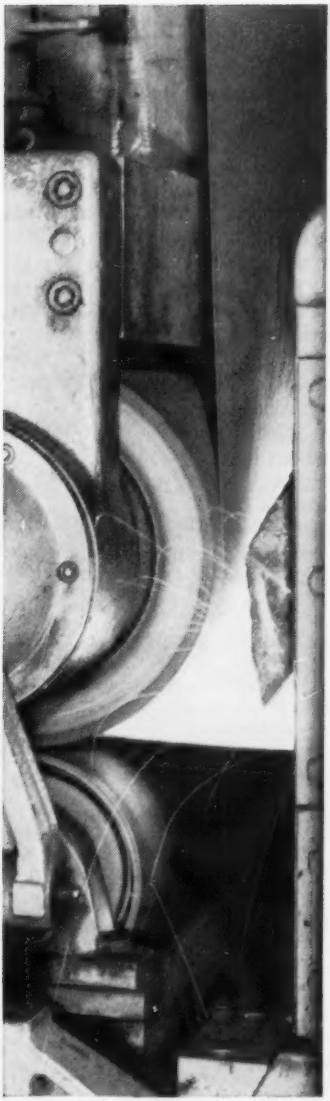
Plating Timer

An electrically operated timer recently introduced by the Cadillac Rectifier Div., R.E.P. Electric Products Co., 539 Webster Ave., New Rochelle, N. Y., automatically starts timing the plating cycle as soon as work is put into the plating tank.

The unit, which is merely connected in one d.c.-line between the power source and the plating tank, automatically signals with a buzzer and a light at the end of a preset time. The timer

Rhodium
ELECTROPLATING SOLUTIONS
Specialists in the Unusual
Technological knowledge acquired through many years of experience, plus special processes and equipment, assure the high quality of our Rhodium Plating Solutions.
Recommended for contact surfaces of switches, waveguide parts and other electrical applications, such as printed circuits... Can be applied in extremely heavy deposits, up to 100 milligrams per square inch.
Rhodium plating provides the advantages of whiteness, lustre and corrosion resistance of a precious metal.
Consult our staff, without obligation, about your specific plating problems.
SINCE 1907
SIGMUND COHN MFG. CO., INC.
121 SOUTH COLUMBUS AVENUE, MOUNT VERNON, N. Y.

For more data circle 389 on Reader Service Card



Flat Polish Faster Smoother... and Use Fewer Belts!

Sharper Cutting, Cleaner Cutting Michigan Belts will do it for YOU!

If you're flat polishing you're after *surface*. And with Michigan Abrasive **RED COAT** brand belts you get the surface you want faster and with the same characteristics run after run.

Illustration shows the **RED COAT** belt spark pattern is concentrated close to the sheet . . . hot waste particles are thrown off—not carried by the belt. The fact that **RED COAT** belts resist loading is just one reason they cut sharper, longer . . . give you better results. You can *see* how sharper cutting Michigan belts mean savings in time and money. Just check the *perfect finishes* produced on sheets that had especially bad surfaces before a *single pass* through your machines. You have fewer rejects—spend less time in handling and second runs.

Like all Michigan belts, sheets and discs, **RED COAT** flat polishing belts produce the results users want. They produce them faster, longer and at less cost. The right coated abrasive you need for any job is listed in our big free catalog! Send for it today and call your Michigan representative the next time you order any coated abrasives. You'll enjoy using the best . . . Michigan

MICHIGAN ABRASIVE CO.

Manufacturers of "The Humidity Controlled Abrasive"

11910 E. 8-MILE ROAD • DETROIT 5, MICHIGAN

Mail this Coupon!

I want more information on Michigan Abrasives!

☐ Send your Catalog ☐ Have representative call.

Name_____

Title_____

Firm_____

Address_____

City_____ Zone_____ State_____

RED COAT BRAND

Michigan ABRASIVES

For more data circle 390 on Reader Service Card

R.E.P. Cyclomatic Timer: prevents overplating

continues to signal until it is switched off or the work is removed from the tank. It then automatically resets itself for the next cycle.

Called the "Cyclomatic Timer," this instrument is said to aid in preventing overplating and underplating. It is available in various amperages and time ranges.

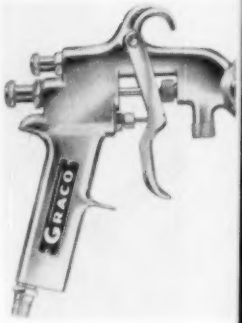
For more data circle 11 on Reader Service Card

★ ★ ★

Lightweight Spray Gun

A lightweight spray gun with a large capacity, for production-type painting, has been announced by Gray Company, Inc., Minneapolis, Minn.

This Graco gun was designed to meet demands for a compact, comfortably balanced and lightweight gun.



Graco Spray Gun

"Buff" de Gook Comes Clean
The plate always streaks and bubbles in this deep groove. We're not getting all the buffing compound out, even tho we dumped the electrocleaner just yesterday.
And only 5 ounces a gallon at 160°? We'll give it a whirl . . . Say Al, how'd you learn so much about plating?
"To work for Pennsalt, I had to learn not only your problems but the problems of the drawing shop, the paint shop, the porcelain enamel boys, the aluminum fabricators — everybody who uses chemicals on metal."

The gun has a lightweight, two-piece aluminum body with air-cap mounting threads of stainless steel, for longer life. No gaskets are used in the fluid tip and air cap. A built-in air distributor is said to result in improved efficiency. The gun's large air passages minimize pressure drop, it is stated.

The gun is equipped with a stainless steel or nylon needle, stainless steel fluid tip and an air cap of the operator's choice.

For additional information about this spray gun, write Gray Company, Inc., 1044 Sibley St., N.E., Minneapolis 13, Minn.

For more data circle **12** on Reader Service Card

★ ★ ★

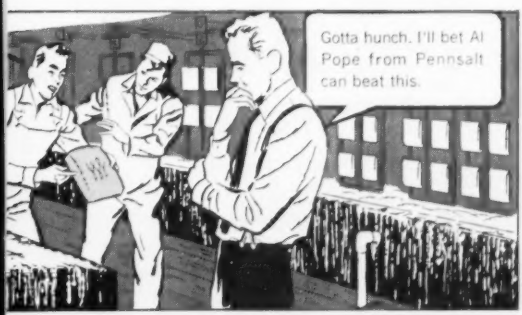
Contact Wheel

A rubber contact wheel which is reported to increase abrasive belt life has been developed by Minnesota Mining and Manufacturing Co., St. Paul, Minn.

Made with a slashed serration, the "X" wheel is formed from neoprene that is said to be substantially more abrasive resistant. An improved type of flange construction eliminates the possibility of misseating the flange: it is an integral part of the wheel, and is permanently attached to the hub.

The "X" Rubber Contact Wheel

The 3M contact wheel is suitable for off-hand weld removal, grinding and polishing of gates and parting



I think we can get these shells perfectly clean . . . and save you money besides, by letting you run your tanks cooler. I'll check our Whitemarsh lab.
OK, but hurry, Al.

Two Weeks Later...
Al, your service is as good as your products. We weren't getting anywhere with that buffing gook till I let Pennsalt work on it.

Remember—nobody knows more about metal processing chemistry than Pennsalt. Even if your trouble may not seem to involve your Pennsalt salesman, call him in anyway. Or write

Pennsalt Chemicals

Metal Processing Dept. 429
Pennsalt Chemicals
3 Penn Center
Phila. 2, Pa.

Please send me information on Pennsalt
☐ metal cleaners ☐ phosphate coatings
☐ cold-working lubricants.

Name_____
Company_____
Street_____
City_____ Zone____ State_____

For more data circle **391** on Reader Service Card

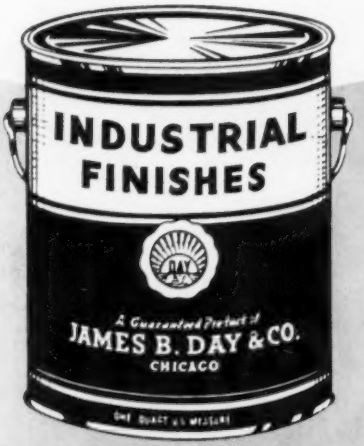
PERFORMANCE TESTED!

for Enduring Beauty

Dayco industrial finishes

For more than half a century, we have been serving the leaders in a wide variety of industrial fields, with the fine finishes that save time and money on production and add the attractive appearance that sells. We have or will produce for you, the special finishes economical production and enduring beauty calls for. We are specialists in:

- Clear and colored Lacquers
- Primers
- Surfacers
- Baking Enamels
- Screening Materials (Lacquers-vinyls-synthetics)
- Handle Finishes
- Removers
- Undercoaters
- Stains



FINE FINISHES SINCE 1906

Write us about your needs

JAMES B. DAY & COMPANY

1872 Clybourn Avenue • Chicago 14, Illinois

lines, snagging and finishing on fabricated metal parts.

It is available in a 14-inch diameter with one-, two-, three-, and four-inch face widths, and in several durometers. It is believed, however, that 80, 55, 35 and 20 durometers will be suitable for most applications.

The "X" wheel is made by, and is available from, the Chicago Rubber Company, 651 Market St., Waukegan, Ill. Additional information will be supplied by the 3M Company, Dept. FH-67, 900 Fauquier St., St. Paul 6, Minn.

For more data circle **13** on Reader Service Card

★ ★ ★

Plastic-Lined Pipe

In applications where it is important to prevent contamination of liquid materials, Teflon-lined steel pipe can often be especially valuable. Because Teflon is impervious to most acids, alkalies, solvents and chemicals, high standards of purity can be maintained in handling such chemicals for metal finishing.

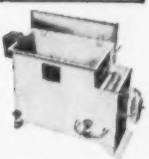
This type of pipe also is advantageous from a maintenance standpoint.

A Sample of Steel Pipe Lined with Teflon

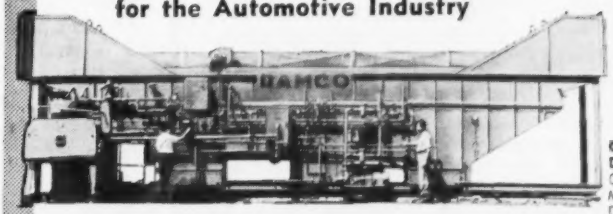
RAMCO degreasers

from Laboratory Units to Giants for the Automotive Industry

ANOTHER RAMCO PRODUCT



LABORATORY DEGREASER



GIANT FORD DEGREASER
Courtesy Ford Motor Car Co., Detroit

Call on our engineering department for the latest in ULTRA-SONIC CLEANING.

Send for FREE CATALOG. Call your nearest Ramco engineer and have your metal cleaning equipment SERVICED AT NO CHARGE.

RAMCO EQUIPMENT CORP. Div. of Randall Mfg. Co., Inc.
811 Edgewater Rd., New York 59, N. Y. • DAyton 3-3900

For more data circle **393** on Reader Service Card

←———For more data on advertisement on opposite page, circle **392** on Reader Service Card.

Since it is chemically inert, it has excellent corrosion resistance. It will withstand temperatures up to 400 deg. F., and pressures up to 300 p.s.i. It has the strength of its steel casing to protect it from abuse.

Teflon-lined steel pipe is recommended for handling slurries and for handling pickling solutions of HF, HNO_3 and HCl. It is also useful in handling high-purity rare metals such as germanium, silicon, zirconium, titanium and so on.

Teflon-lined pipes are available from Haveg Industries, Inc., 914 Greenbank Rd., Wilmington, Del.

For more data circle **14** on Reader Service Card

★ ★ ★

Barrel Plating Machine

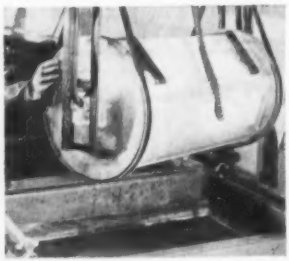
An automatic barrel plating machine that has variable cylinder rotation speeds and a centralized cycle control has been announced by Hanson-Van Winkle-Munning Co., Matawan, N. J.

This machine was designed to remedy the problem of "pile-up" and storage in the plating room. With a return-type conveyor, the H-VW-M machine permits a continuous flow of small parts and hardware from the production department or loading dock, through the machine and back again, without pile-up or manual handling.

One-man operation is possible with the machine's centralized control. Automatic control aids in producing uniformity of deposit. The Mercil-type barrels are

ZINC-KOTE THE AMAZING NEW

ZINC BRIGHTENER that eliminates the BRIGHT DIPPING operation



SAVES TIME

SPEEDS PRODUCTION

Your barrel plated parts will come out brighter and in greater uniform brilliance with ZINC-KOTE. Subsequent bright dipping is eliminated because, with ZINC-KOTE, all of the bright plating is accomplished directly in the bath. The close-grained, thick zinc deposits, that are formed, assure an excellent underseal for finishes . . . protection against rust and corrosion . . . a good foundation for chromate finishing and bonderizing! ZINC-KOTE has a wide current density range . . . consistently produces bright zinc with the simplest control . . . It's compatible and effective in all zinc barrel solutions . . . Has exceptional adaptability, maximum throwing power, unusual staying power to make barrel plating more dependable.

Try SmootheX

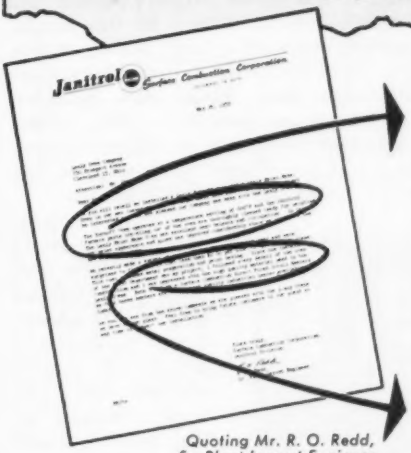
Write For Literature

- BRIGHT COPPER
- CAD-KOTE (Barrel & Still)
- ZINC-KOTE (Barrel & Still)
- ZINC-KOTE PURIFIER
- ARGOL-X

SMOOTHEX, Inc. • 10705 BRIGGS ROAD CLEVELAND 11, OHIO

For more data circle **394** on Reader Service Card

Janitrol divisions
Surface Combustion Corporation
COLUMBUS 16, OHIO



Quoting Mr. R. O. Redd, Sr. Plant Layout Engineer

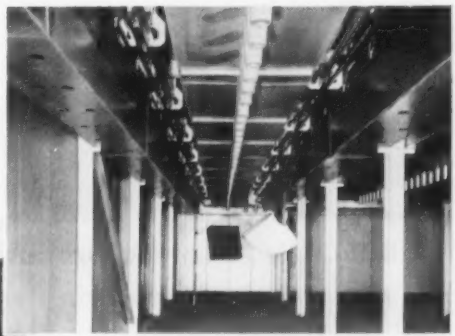
The LANLY Paint Bake Oven

HAS EXCELLENT HEAT BALANCE AND CIRCULATION. IN FACT OUR PAINT APPEARANCE AND GLOSS HAS IMPROVED CONSIDERABLY SINCE WE INSTALLED THE NEW LANLY BAKE OVEN

I was impressed with the high quality material used in the Lanly ovens.

Another of the nation's leading manufacturers attests to the efficiency and multi-fold merits of their LANLY OVENS.

Illustration below shows the ingenious manner in which LANLY engineers with the cooperation of The Surface Combustion organization, circumvented the problem of available factory floor space.



Showing a partial conveyor run in the LANLY low temperature paint bake oven.

YOU TOO CAN DO A BETTER JOB WITH LANLY OVENS

Write for the Lanly Catalog

LANLY FINISHING OVENS
THE LANLY COMPANY • 770 PROSPECT AVE
CLEVELAND, OHIO

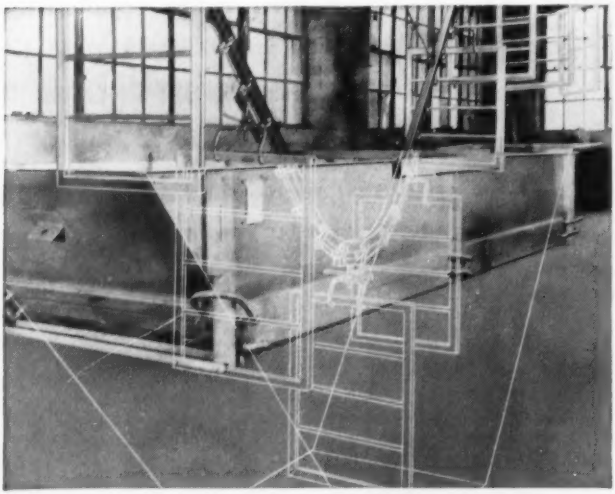
For more data circle 395 on Reader Service Card

driven by a constant-tension V-belt and pulley arrangement that permits changing speed of cylinder rotation. By providing gang drives at each section of the machine, the cylinders change speed of rotation to match the tank requirements without using multi-speed motors on each cylinder frame.

A "flag" arrangement on each cylinder hanger permits the operator to select the proper cycle for the contents of the barrel without leaving his central station. A flag in the raised position contacts a limit switch at the tank to withhold the cylinder from that particular bath. Since each cylinder follows its independent cycle, unlike loads may be placed in adjacent cylinders and the proper cycle selected for each one at the time of loading.

The return-type machine is oval shaped, with the load and unload stations at a central operator's station. A central control and indicator board at this point permits the operator to maintain constant supervision of the barrels at any point of the cycle.

Development of the gear and V-belt drive minimizes maintenance time by reducing the number of cylinder drive motors needed. A drive shaft on the conveyor transmits power through a gear train to a belt and constant - tension pulleys. The belt drives a gear train on the barrel hangers. Tension remains constant on the belt, whether the barrel is immersed or fully raised



BUSCHMAN Conveyors cut the cost of raising and lowering windows!

Shortened de-greasing tank saves valuable floor space in this modern plant . . . one of the many profitable advantages introduced by the BUSH-LOCK "Universal" Overhead Cable Conveyor for the cleaning and coating of aluminum window frames.

Cut your operational costs. BUSCHMAN packaged stocked parts provide a conveyor system tailored to your plant's specific needs.

Write for bulletin No. 41

Buschman will cooperate with industrial washer or oven equipment manufacturers whenever your plant is being surveyed.

PRODUCE MORE . . . FOR LESS
Buschman CONVEYORS

C-335-EWB

THE E. W. BUSCHMAN CO.
4516 Clifton Ave., Cincinnati 32, Ohio

For more data circle **396** on Reader Service Card

Cut plating costs by saving anode metal use RED LABEL DARCO®

Purify your plating baths by regular treatment with Red Label DARCO activated carbon—and you'll get maximum mileage from scarce, costly anode metal. You'll keep plating quality consistently high—plating costs consistently low.

You'll like the way DARCO wets quickly . . . keeps your shop clean. You'll like the long filter cycles you get, due to its high bulk density . . . up to 50% higher than "fluffy" carbons.

The only activated carbon developed exclusively for the plating industry, Red Label DARCO is the leading choice of electroplaters everywhere. Order from your local DARCO distributor, in handy 10-lb. and 50-lb. cartons.

DARCO IS MADE BY ATLAS

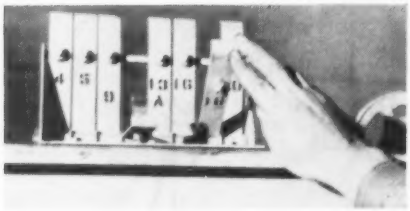
CHEMICALS DIVISION

ATLAS POWDER COMPANY

WILMINGTON 99, DELAWARE

In Canada: Atlas Powder Company, Canada, Ltd.
Brantford, Ontario, Canada

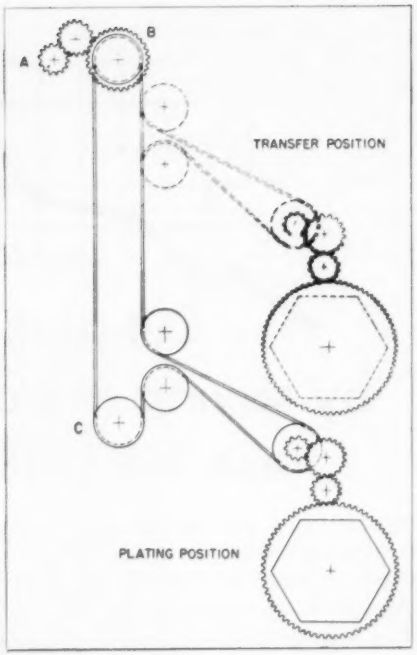
For more data circle **397** on Reader Service Card



Operator sets "flag" selector on the Hanson-Van Winkle-Munning barrel plater. Each flag in up position contacts a limit switch at the selected station and withholds the barrel from that tank. Thus several individual barrels may follow independent cycles.

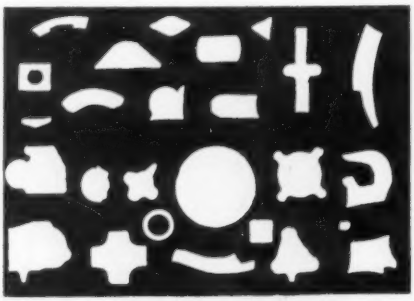
for travel between tanks.

The barrel rotates during lift for draining, during the descent into the tank and during travel through the solution. An automatic mesh-unmesh device engages the drive at each station on the machine. It also makes possible the change in rotation speeds.



Gang drive permits variable cylinder speeds on Hanson-Van Winkle-Munning barrel plater. Main-frame drive shaft (A) transmits power to constant-tension belt drive. Pulleys B and C are fixed to the machine's conveyor frame.

Barrels are designed for total sub-



Pre-Cut Masks Speed Finishing

Brady Pre-Cut Masks are self-sticking — go on fast and accurately. Protect from finishing to inspection. Hundreds of shapes and sizes in stock, for paint spraying, baking, tumbling, etc. Specials made to order. Fast delivery. Distributors in 150 cities.

Write for free samples and Bulletin 160-C.

W. H. Brady Co.

746 W. Glendale Ave., Milwaukee 9, Wis.

For more data circle 398 on Reader Service Card

Telephone collect for free brochure on

STRIPPING COPPER

with

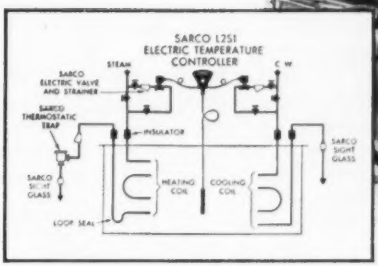
McKeon's "Liquid Sulphur"

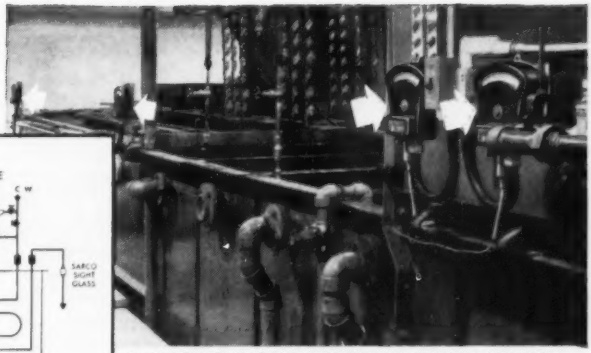
Economical, fast, non-electrolytic.

Sulphur Products Co., Inc.

McKeon Bldg., 621 W. Pittsburgh St., Greensburg, Pa.

For more data circle 399 on Reader Service Card





Seventeen Sarco Electric Temperature Controllers help maintain high quality plating—cut costs—at Ronson Corporation, Delaware Water Gap, Pa. Controllers are used on chrome, nickel, copper, silver, and gold plating tanks. This is a repeat installation.

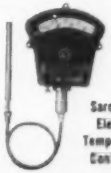
Improve plating quality—cut your costs with low-cost temperature control

Unstable bath temperatures . . . the result of erratic manual temperature control . . . are sure to lead to costly rejects, wasted man-hours and breakdown of plating solutions.

You can solve these problems at *low cost* . . . by installing always-reliable Sarco Automatic Temperature Control. Just think . . . a complete Sarco System is yours for as little as $130 a tank!

1. **You improve plating quality** because creeping temperatures are a thing of the past.
2. **You lower rejects** because solutions are held automatically to pre-set temperatures. No chance for human error to mess up a tankload . . . and cut into profits.
3. **You get better utilization of time** —platers are able to concentrate on their plating work. No worrying about bath temperatures. No turning on and off of valves.
4. **You save plating solutions** — because automatic control prevents boil-off caused by overshooting temperature.

Write for Bulletin 1025-B or consult your plating supplies jobber. Sarco Company, Inc., Empire State Bldg., New York 1, N.Y.



Sarco LSI Electric Temperature Controller

A COMPLETE SYSTEM FOR AS LITTLE AS $130 A TANK!

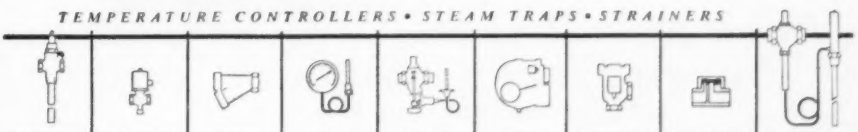
Think of it . . . automatic temperature control that often pays for itself in weeks!

Easy-to-read controller dial clearly indicates temperature being maintained. Temperature setting quickly changed by turning one knob.

2224-B

SARCO *improves product quality and output*

TEMPERATURE CONTROLLERS • STEAM TRAPS • STRAINERS



For more data circle **400** on Reader Service Card

mersion during the plating process to increase plating speeds and ensure thorough deposition. The belt drive does not come into contact with the solutions at any time. Double flexible dangler contacts are used with the barrel, carrying current into the cylinder through both ends.

Cylinders are available in plastic and hard rubber in all standard models and sizes. A coverless, self-unloading cylinder of plastic may be specified. Cogged-belt-driven cylinders are also offered for installation with the machine. Instead of a gear drive on the cylinder frame, each end of the barrel is driven by a cogged belt which offers non-slip design simplicity and reduces maintenance problems.

Special storage, weighing and unloading hoppers are available and a hopper-fed forced air dryer may be specified. Matched generators and rectifier circuits are available from the manufacturer.

The machine may be equipped with the user's selection of interlocked controls to permit automatic warning of non-operation, or complete shut-down of the system.

For more information about H-VW-M's automated barrel plating machine with central cycle selection and variable cylinder rotation, write Hanson-Van Winkle-Munning Co., Church St., Matawan, N. J.

For more data circle **15** on Reader Service Card

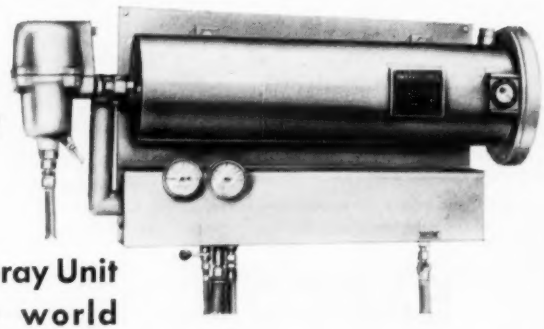
★ ★ ★

Stripper for Epoxy Finishes

Oakite Stripper S-A, a solvent-acid compound designed to strip high-grade epoxies and other tough finishes, has recently been introduced by Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

THERM -O- SPRAY
Trade Mark Reg US Pat Off

HOT SPRAY UNITS



—the leading Hot Spray Unit used all over the world

Reduce production costs—obtain better finishes!

THERMOSPRAY COMPANY, INC.
60 East 42nd Street, New York 17, N. Y.
In Canada: Scandia Supply Co., Ltd., 376 Craig Street W., Montreal

For more data circle **401** on Reader Service Card

I know it's low cost – but how do I get started?

Do I need trained operators?

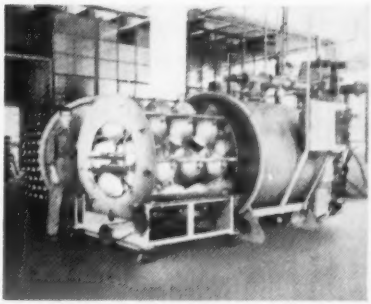
What's the story on lacquers?

What will my costs be?

Where do I get experienced advice?

Here's how to get started with low-cost vacuum coating . . .

It is really quite simple. National Research technicians have a great store of vacuum coating experience available for your use. They are experience-equipped to design a *complete vacuum coating system* for you. Give you an idea of your costs ahead of time. Supply you with a vacuum-coated sample of your product. Make the installation. Advise on lacquers. Train operators. Stand by to help you quickly get into profitable production. Here's the easy, sure way to use the latest, low-cost method of coating metals and plastics with beautiful metallic coatings. Send coupon.



Reflector finishing costs dropped 75% when this National Research vacuum coater replaced electroplating.

We Need FIVE ENTHUSIASTIC ENGINEERS To Help Us Keep Growing.

Mechanical, electrical and chemical engineers who honestly enjoy solving novel problems in brand new fields are offered new responsibilities and more stimulating work. Write Mr. David Tobin or call De 2-5800.

NRC
EQUIPMENT CORPORATION

NRC EQUIPMENT CORPORATION
A Subsidiary of
NATIONAL RESEARCH CORPORATION
Dept. 23-F, Charlamont Street, Newton Highlands 61, Mass.

Please send me the "Rapid Cycle" Vacuum Coater Bulletin

Name..... Title.....
Company.....
Address.....
City..... Zone.... State.....

For more data circle **402** on Reader Service Card

Inhibited for safety on all metals except magnesium during the recommended stripping period, Oakite Stripper S-A removes a wide variety of resistant paints in from one to five minutes. This stripper is also said to remove light rust, scale and smut deposits from metal surfaces.

The material is used at room temperature and full strength. Parts are immersed in the tank for the necessary time, then rinsed with cold or hot water. Oakite Stripper S-A has no flash point, so presents no fire hazards, it is stated.

For more data circle **16** on Reader Service Card

★ ★ ★

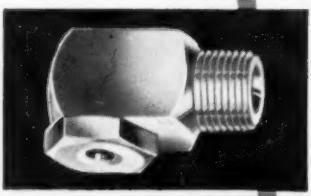
Leak Detector

A leak detector that detects and locates a leak so small that it will admit less than two cubic inches of gas per year has been announced by NRC Equipment Corporation, Newton Highlands, Massachusetts. The NRC Model 4902 Vacuum Leak Detector locates leaks in high-vacuum, pressure and other process equipment. It is also valuable as a quality control instument in leak testing a wide variety of manufactured items ranging from water buckets and automobile radiators to hydraulic systems and hermetically sealed components.

The instrument is operated by connecting it to the system or part under test, which is then evacuated with a mechanical vacuum pump. When a pressure of 80 to 200 microns is attain-

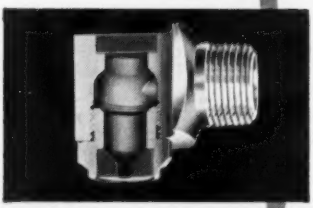
Spray Nozzle types

choice of over 12,000 basic designs



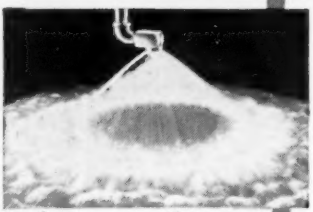
materials

brass, stainless steel, lead, hard rubber, hardened steel, tungsten carbide and many others.



performance

uniform distribution with spray angle, capacity, impact and atomization to your specifications.



to improve every spraying operation

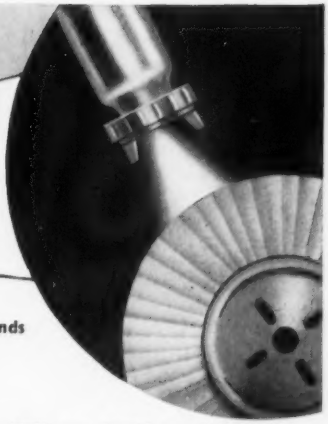
Improve performance, lower spraying costs with Spraying Systems spray nozzles. Prompt delivery. For complete information write for Catalog 24.

SPRAYING SYSTEMS CO.
3229 RANDOLPH ST. • BELLWOOD, ILL.

ADVANCED SPRAY NOZZLE DESIGN FOR NEW DIMENSIONS IN CONTROL AND PERFORMANCE

For more data circle **403** on Reader Service Card

STUTZ LIQUISPRAY



BUFFING COMPOUND

Why — LIQUISPRAY saves you money over bar compounds
- No crumbling or nubbins—all the compound goes on the wheel
- Same regulated quantity applied
- No machine downtime to change bars

What — LIQUISPRAY can mean to you
- Increased operator efficiency
- More uniform finish and fewer rejects
- Compound costs cut up to 50%
- Tremendous increase in buff life

Choice of heavy cut, cut and color, or color in either tripoli or stainless steel grades.

WHY you should use LIQUISPRAY
- Abrasives will not settle
- No fire hazard
- No clogging of idle guns
- All the compound sticks to the wheel
- Leaves work free of dirt and easy to clean prior to plating

LIQUISPRAY is the best... We invite your inquiry specifying your particular requirements. Samples available.

THE STUTZ COMPANY

4410 Carroll Avenue, Chicago 24, Ill.

For more data circle 404 on Reader Service Card

TUMBLING BARRELS *Last Longer* with Acme-Fisher RUBBER LININGS

Deburring and finishing are rough on ordinary tumbling barrels.

Acme-Fisher Rubber Linings for tumbling barrels are tough, abrasive and chemical resistant. Specially formulated rubber linings are bonded securely to the inner walls, then cured, to form tough linings that will provide long service for the roughest deburring and finishing operation.

48 HOUR SERVICE
DIRECT FROM MANUFACTURER TO YOU

Acme-Fisher Division
BROADWAY RUBBER CORP.
529 E. Broadway Louisville 2, Ky.

For more data circle 405 on Reader Service Card

24 HOUR SUNLIGHT

means better paint for industry

To guarantee exact duplication of color, a sample of each batch is checked against your required color standard under controlled light conditions. Sunrise and high noon light conditions can be produced by the lamp shown above, day or night. Further checks on color employ an electronic color difference meter.

Developing *the right paint for your product or plant* is only the first step in the complete Lowe Brothers Technical Service.

Highly skilled technicians also perfect production techniques and supervise their control to guarantee that every mix of your formula is exactly the same and meets your rigid specifications.

To control this production the very best testing equipment, such as the standard-light condition unit shown here, are utilized at every step during manufacture. As many as 89 separate production tests are standard for some paints.

This combination of technical "know how" and "production ability" assures you of the right paint for the best job every time. For this complete service call in your finishing specialist at LOWE BROTHERS, 434 East Third Street, Dayton 2, Ohio.

LOWE BROTHERS

Quality unsurpassed since 1870

INDUSTRIAL FINISHES

For more data circle **406** on Reader Service Card

NRC Model 4902 Leak Detector: spots smallest leak in a system under vacuum

ed, the outside of the part is blanketed with a tracer gas. Easily available, low-cost Freon-12 is used. If a leak is indicated, further probing with a fine stream of gas locates the leak with pinpoint accuracy.

For more data circle **17** on Reader Service Card

★ ★ ★

Washing Machine

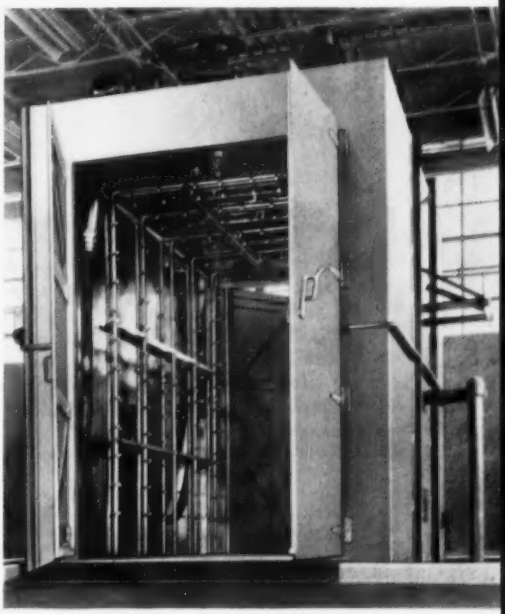
A fully automatic Cabinet-Type Washing Machine with a "traveling wash carriage" has been introduced by The Alvey-Ferguson Co., Cincinnati, Ohio, for cleaning and processing large, odd-shaped metal products.

For cleaning, the machine is equipped with automatically-timed wash and rinse cycles. These can be pre-set for any desired time periods and the operation is automatic. A signal light indicates when the operation is completed.

Combination cleaning and phosphate coating materials may be used in the wash tanks and a small amount of chromic acid added to the rinse water provides a basic treatment that makes an excellent bond for paint.

Separate wash and rinse piping assemblies mounted on reciprocating carriages supply full spray coverage from four sides. Individual pump and tank units are furnished for each solution. Solutions are returned to their proper storage tank by automatic drain sheets.

This A-F Cabinet-Type Cleaning and Processing Machine is installed in a pit at "track level." Parts are loaded on specially designed trucks which are pushed into the cabinet. Removal may be made from the front, or the load may be advanced through the opposite end of the machine. The clearance of this particular unit will accommodate a loaded truck four by



Washing Machine has traveling wash carriage

six and one-half by ten feet.

Further data is available from The Alvey-Ferguson Co., Dept. PF, 1239 Disney St., Cincinnati 9, Ohio.

For more data circle **18** on Reader Service Card

★ ★ ★

Conversion Coatings

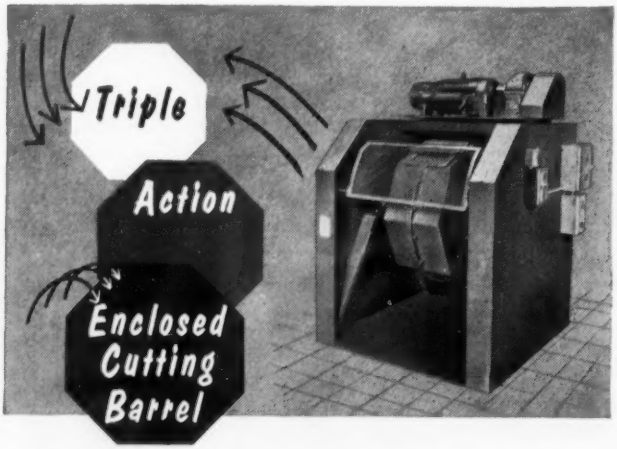
Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Maryland, has introduced four conversion coatings for protective and decorative uses.

The first of these is designated as Iridite No. 5-P. It is a powdered concentrate which produces a yellow iridescent coating on zinc and cadmium plate, galvanized iron and zinc die castings. The resultant finish is corrosion resistant and is said to make an excellent base for paint.

Iridite No. 8-4 is an all-purpose liquid chromate for zinc and cadmium. It produces a bright finish, or, in applications where government specifications for supplementary chromate treatments must be met, it can provide a protective coating on zinc plate, cadmium plate, zinc-base die castings or galvanized steel.

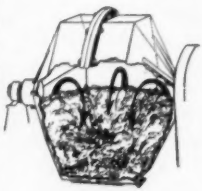
The third product, Iridite No. 12-P is a powdered material designed to provide a one-dip, clear, blue-bright finish on zinc-plated parts. Iridite No. 12-P also can be used to produce a bright finish by using it in combination with ARP Brighteners.

The fourth compound is Iridite No. 14-9, a powdered concentrate



The Finest Cutting Barrel Ever Made

Hartford's great new enclosed barrel speeds deburring, descaling, polishing on screw machine parts, stampings, and castings. Hartford's unique *Triple Cutting Action* produces the highest degree of uniformity . . . faster . . . at lower cost. Extremely compact with every modern feature for efficiency, safety, and cleanliness. Available in 4 and 10 cu. ft. barrel capacities. Write for complete literature.



Hartford

PRECISION BALLS • RETAINERS
BEARINGS • TUMBLING BARRELS

HARTFORD STEEL BALL CO., INC.
14 Jefferson Ave., West Hartford 6, Conn.

For more data circle **407** on Reader Service Card

AGATEEN! AGATEEN!

OUR 30th ANNIVERSARY!

This month we pass our 30th milestone as a leading supplier of Clears —AGATEEN CLEARS—to leading firms in industry.

We have grown with our original customers, most of whom still regard AGATEEN as the standard of quality and performance.

To them and to all our friends and customers we take this opportunity to say "Thank You!"

Bill Chace

AGATE LACQUER MFG. CO., INC.

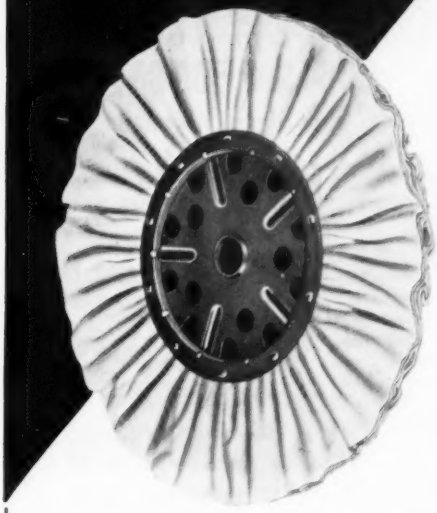
Serving Industry Since 1927

11-13 43RD ROAD, LONG ISLAND CITY, N. Y.

Stillwell 4-0660-1

AGATEEN! THE LAST WORD IN QUALITY AGATEEN! THE LAST WORD IN QUALITY

For more data circle **408** on Reader Service Card



Riegel

BIAS BUFF

Ventilated Type

— for use on AUTOMATIC MACHINES.

Constant flow of air through extra vents in permanent or removable center — stops burning — assures longer life — greater efficiency — most economical.

Give the RIEGEL BIAS Ventilated Buff a trial. Prove it on your machines.

The BIAS BUFF and Wheel Company

Division of Riegel Textile Corp.

3464-66 Hudson Blvd., Jersey City 7, N. J.

For more data circle **409** on Reader Service Card

designed to provide a one-dip, clear protective coating on aluminum. This compound operates at extremely low concentrations, the manufacturer states. The clear film produced from a single dip in Iridite No. 14-9 provides corrosion protection and meets the requirements of specification MIL-C-5541. The manufacturer suggests this material for application in the aircraft industry as well as in other fields where aluminum is used, such as furniture, building materials, automobiles, appliances, and so on.

For more data circle **19** on Reader Service Card

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

For information on Finishing Equipment, Materials, Processes, see the 1957 PRODUCTS FINISHING DIRECTORY.

For cleaning metal, wood and plastic surfaces before painting. Order today through your supplier.

DETRO SALES CO., INC., *Culver City, California*
Standard of the Finishing Industry Since 1934

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For QUALITY...
CONSISTENCY...
SERVICE...
SPECIFY THE...

Pressure-Cooled
BUFF

. . . the most advanced buff in the field today.

Designed and Manufactured Only by:

UNITED BUFF PRODUCTS CORPORATION

PASSAIC, NEW JERSEY
WAREHOUSE STOCKS IN PRINCIPAL CITIES OF U.S. AND CANADA

NOTICE: The Pressure-Cooled Buffs and Aircon Wheels are covered by U.S. Patents No. 2,519,275, No. 2,637,957 and Canadian Patent No. 496,704. Other U.S. and Foreign patents pending.

For more data circle **411** on Reader Service Card

Automation
means
COSTS REDUCTION!
Look to Versatile
Packer-Matic
AUTOMATIC POLISHING & BUFFING MACHINERY
Large or small production runs
DIRECT FACTORY REPRESENTATIVES IN:

New York State	North Carolina
New Jersey	South Carolina
Eastern Pa.	Tennessee
Delaware	Georgia
Maryland	Alabama
Virginia	Mississippi
Dist. of Col.	Florida

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News of the Industry

New plants . . . company news . . . new positions . . . meetings . . .

NEW PLANTS

Parker Rust Proof Company, Detroit, has announced the opening of an automated customer service laboratory for the treatment of metal surfaces on a production basis.

The new installation gives metal-working industries access to a complete technical service for actual production-line testing of corrosion preventives, phosphate treatments for anchoring paint to metal and lubricants for cold forming.

In addition, the laboratory has equipment for high-speed, instantane-

Fig. 1—Parker Rust Proof Company's new automated laboratory for treatment of metal surfaces. Operator is shown pushing a button on control panel, which starts heavy coil of strip stock feeding into phosphate coating machine. Within machine, metal is washed, rinsed and automatically coated with chemicals. Automatic spray phosphatizing machine can be seen in right background. It is used to treat test panels and production parts.

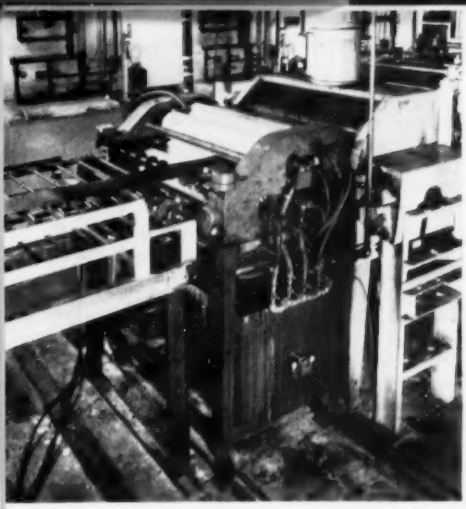

Fig. 2—In Parker "production line" laboratory, chemical coatings are applied by two methods: automatic spray and by passing between rollers, as shown above. Roller coating machine above can be removed from the production line when it is not in use.

ous coating of sheet and strip stock.

For the new laboratory, Parker engineers have designed a special piece of equipment which can clean coils of strip stock, rinse, apply a phosphate-coating and lubricant, and quick-dry. This machine performs these operations in one continuous operation at speeds necessary for automatic production.

The Parker strip and sheet processing unit can be adapted to the varied speeds of automatic production. Extending 75 feet, the machine can handle coils up to a maximum width of 18 inches and up to 3,000 pounds in weight. Sheet stock up to 36 inches maximum width can be accommodated.

The stock (sheet or strip) passes in turn through a succession of cleaning, rinsing and phosphate coating spray zones, followed by final conditioned rinsing and drying.

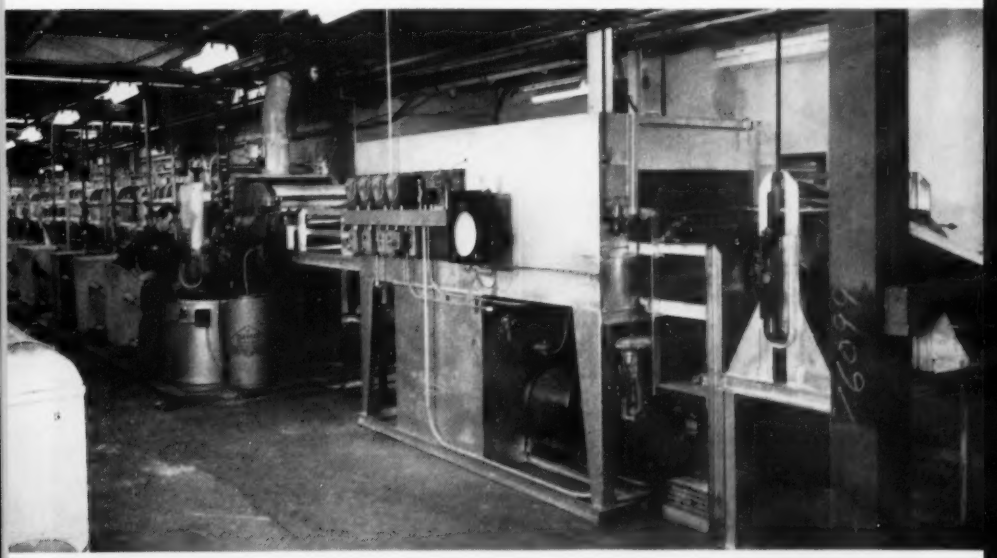

Fig. 3—Workman checks concentrations of chemicals, which are applied by sprays and roller coaters in a continuous operation. Various applications protect coil stock against corrosion, provide base for paint finish, and apply coatings to prepare metal for cold-forming operation. After being treated in same manner as required in production, strip or sheet stock passes through the drying oven shown on right of this photo.

For cold forming applications, a lubricant roller coater is introduced prior to the dry-off oven.

Before setting up a cold-forming production line, a manufacturer now can have a sample lot of material treated at the new laboratory. In this manner, such factors as tool and die design, die life, surface finish and overall performance can be evaluated.

Parker also has installed a companion machine which automatically spray-treats panels and production parts on a continuous overhead conveyor.

To complete the facilities, the company has built modern room-size chambers for conducting accelerated salt-spray and humidity tests.

"This unusual laboratory is equipped to provide the answer to any metal finishing problem which may arise, pertaining to surface preparation and treatment of metals," declared M. B. Roosa, vice president in charge of sales at Parker Rust Proof.

"Consider the metal fabricating plant which wishes to convert to automatic production, perhaps with a new product," he explained.

"Instead of first having to install special equipment, the factory now can ship a sample of stock to our laboratory at 2174 E. Milwaukee Ave., Detroit, Mich. We will run the sheet or strip through the new automatic unit, determining exactly how the coatings must be applied under production conditions."

The treated stock, enough for a full production test, then is returned to the manufacturer for his experiments.

Thus the manufacturer does not have to invest in costly pilot equipment until he has concluded his test runs and is ready to consider procurement of production equipment.

Parker officials also cited the case of the plant which experiences a new problem during production.

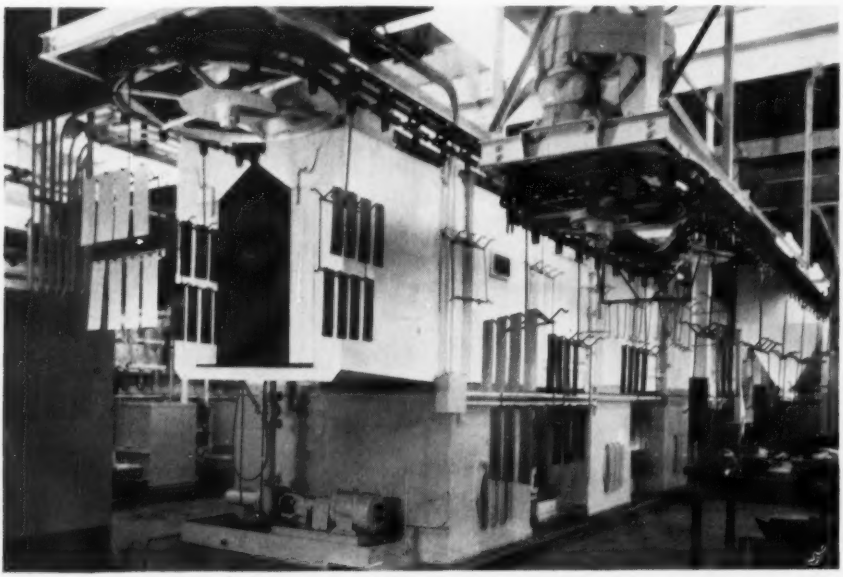

Fig. 4—"Gold Standard" panels, which are used by paint companies for testing finishes, are shown as they enter a machine that sprays the panels with Bonderite. Sample parts, which are submitted by customers, are also processed in this conveyorized machine.

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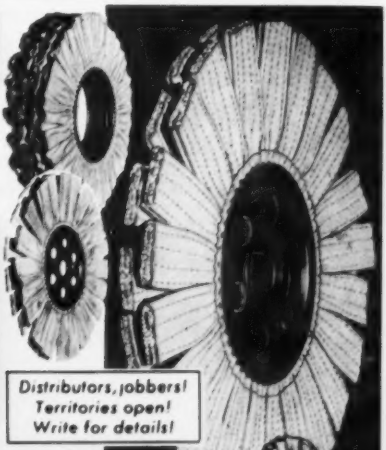

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"If our field engineers feel that the problem could be solved more quickly in the laboratory, sample parts or panels will be treated in the new automatic spray coating machine," a spokesman said.

Parker Rust Proof's most famous product, Bonderite, was born over 25 years ago. It greatly improved painting processes by providing a base which "locked" the organic finish to the metal and helped to eliminate peeling and subsequent rusting.

Parker officials predict that the automated metal surface treatment laboratory will aid in bringing about the following developments:

1. Greater use of coil stock which has been pre-treated at the mill with a phosphate coating and lubricant for cold forming.
2. Wider use of the process in which stock is both treated and painted before forming, such as is now practiced in the manufacture of venetian blinds, metal awnings and siding.
3. Development of a "tinless" tin can for the can industry.
4. New applications in the building trade for pre-treated structural steel and aluminum similar to that currently in use for roof decking and panel walls.

Meanwhile, the Parker laboratory will continue to expand its services.

Along with such current projects as the mass production of "gold standard" Bonderite-treated test panels for the paint industry, coating "samples" of cold-rolled strip (weighing up to 90,000 pounds) for experimental production and treating production lots of auto bumper bars and valve rocker arm stock, Parker plans to go forward arm-in-arm with automation.

★ ★ ★

Kosmos Electro-Finishing Research, Inc., has moved into a new plant in

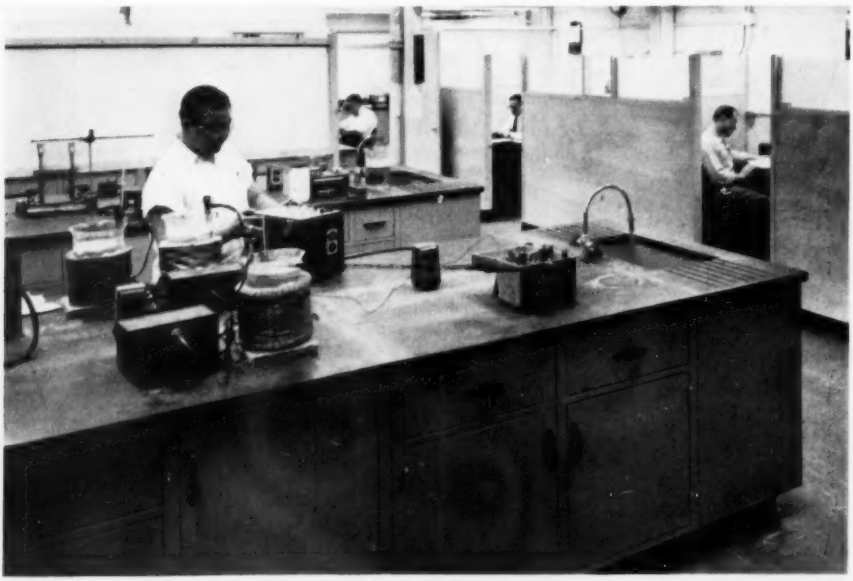

Fig. 5—Along with the new customer-service laboratory, Parker Rust Proof has also installed new development laboratory, part of which is shown here. Each research chemist has his own office. (Photographs courtesy Parker Rust Proof Company, Detroit, Mich.)

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Laboratory facilities in new Kosmos plant

Hackensack, N. J. The new building contains modern laboratory facilities designed to carry out a diversified research program.

Kosmos specializes in the production of chromate conversion coatings and brighteners for use in plating. The firm also makes clear and pigmented coatings for zinc and cadmium, as well as brighteners for these two metals. Kosmos also handles a complete line of plating chemicals and equipment.

Engineering service for the company will continue under the direction of J. C. Kosmos.

COMPANIES

Tumb-L-Matic, Inc., supplier of tumbling equipment and processes, has moved to St. Mary's Street, Stamford, Conn. The move is expected to permit a 30 per cent increase in production through the acquisition of new equipment, expanded laboratory facilities and efficient space layout.

★ ★ ★

Agate Lacquer Mfg. Co., Inc., 11-13 43rd Road, Long Island City, New York, is celebrating its 30th Anniversary according to an announcement by **W. W. Chace,** president. The company manufactures a complete line of lacquer finishes. Its Agateen Clear Lacquers, particularly, have enjoyed wide acceptance in the Finishing Industry.

★ ★ ★

The corporate name of **Pennsylvania Salt Manufacturing Company** has been changed to **"Pennsalt Chemicals Corporation."** Objective of the change is to provide a name more descriptive

New plant for Kosmos Electro Finishing Research, Inc., in Hackensack, New Jersey

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of the company's present activities as a major producer of chemicals for industrial, farm and home use.

★ ★ ★

Northwest Chemical Company, Detroit, has licensed the **Alert Supply Company** of Los Angeles, California, to manufacture the Northwest line of specialized cleaning compounds.

The Alert Supply Company will manufacture the cleaners in a recently completed factory and warehouse.

★ ★ ★

Bernard Baer, general sales manager, **Octagon Process, Inc.,** Staten Island, N. Y., has announced the appointment of the **Metalclean Equipment Co.** as distributor for Octagon Process in the Philadelphia-Camden area, Pennsylvania west to Harrisburg, Delaware and Maryland.

In addition to Klearall 95 Safety Solvent, Metalclean will carry cold and hot metal cleaners, safety solvents, paint strippers, carbon and rust removers, rust preventive oils, bright dips and phosphatizing compounds.

SUCCESS STORY

"I finished your course in May 1950. Since then I have advanced in the plating field. I am supervisor for one of the largest job shops in Detroit. I still use your books as reference and think they belong in the library of all concerned with the plating industry," writes student alumnus H.G.B. You can advance the same way! **Free details.** JOSEPH B. KUSHNER, ELECTROPLATING SCHOOL, 115 BROAD ST., STROUDSBURG 20F, PA.

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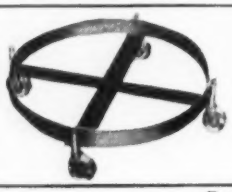
During a recent tour of the U. S., Rolf Bergvall (third from left), technical manager of Kemiska AB Candor, a Swedish manufacturer of metal finishing supplies recently licensed to manufacture Iridite chromate conversion coatings and ARP plating chemicals for the Scandinavian countries, inspected facilities for applying Iridite conversion coatings at the National Lock Company, Rockford, Illinois. Shown here inspecting typical samples are A. L. Poe, district sales manager for Allied Research Sales Corporation; Bill Geissman, National's assistant finishing division superintendent; Mr. Bergvall; and Len Weeg, National's finishing division superintendent.

NEW POSITIONS

Charles R. Wirshing has been named metalworking chemicals sales manager, West Coast District, for **American Chemical Paint Co.,** Ambler, Pa. Mr. Wirshing has been a member of the ACP sales staff for ten years.



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The E. W. Buschman Company, Cincinnati, Ohio, has initiated a new plan of sales operation, according to an announcement by E. W. Buschman, president. Under the new plan, **Rudy B. Vogt** and **Victor W. Sicking,** vice-presidents, will direct sales for the company's three manufacturing divisions: pre-engineered gravity wheel and roller conveyors; overhead cable conveyors; and engineered conveyor systems.

Four district managers have been appointed to direct sales through representatives in principle cities. **N. H. Inderhees** will manage District No. 1, which includes Indiana, Kentucky and Ohio. **J. R. Keen** will be in charge of District 2 (20 states in western

Rudy B. Vogt

J. R. Keen

Conrad Myers

H. L. Sellars

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N. H. Inderhees

Victor W. Sicking

area). **H. L. Sellars** will direct the activities in eleven states in Eastern District 3, while the fourteen states in District 4 (southern area) will have **Conrad Myers** as manager.

★ ★ ★

Fred Fulforth, who for a number of years has represented United Chromium and its successor **Metal & Thermit Corporation** in the Philadelphia area and the Southeast is now located at the Southeastern Regional Office of Metal & Thermit, 565 Western Ave., N.W., Atlanta, Ga.

H. W. Buchanan, sales manager of Metal & Thermit Corporation's Chemicals, Metals and Plating Products Division, has announced the appointment of **R. A. Stewart** as a sales engineer. Mr. Stewart formerly was with Western Electric Company, Indianapolis as an electrochemical engineer. He will serve electroplating accounts for Metal & Thermit in the northern and western portions of Indiana, operating from the company's sales office at East Chicago.

NECROLOGY

Jacob B. Frech, former secretary-treasurer of **Balcrank Inc.**, Cincinnati, died of a heart attack at his Cincinnati home, May 13. He was 72.

Mr. Frech, who had been with Balcrank Inc., since August, 1939, had retired from the firm just two weeks prior to his death.

MEETINGS of INTEREST to FINISHERS

June 16-20. 44th Annual Convention, A.E.S., Sheraton-Mount Royal Hotel, Montreal, Canada.

June 16-21. A.S.T.M. 60th Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J.

Oct. 6-10. Fall Meeting, Electrochemical Society, Statler Hotel, Buffalo, N. Y.

Oct. 30-Nov. 2. 22nd Paint Industries' Show and 35th Annual Meeting, Federation of Paint and Varnish Production Clubs, Bellevue-Stratford Hotel, Philadelphia, Pa.

Nov. 2. Annual Educational Session and Banquet, Philadelphia Branch, A.E.S., Penn-Sheraton Hotel, Philadelphia, Pa.

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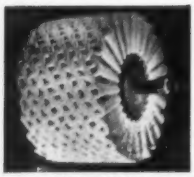

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PRODUCT LITERATURE

46. Ovens
Catalog describes and illustrates various types and sizes of paint-baking ovens. Lanly Co., 770 Prospect Ave., Cleveland, Ohio.

47. Chromate Dip
Technical details on K. E. R. Chro-Mite 4, a chromate-type dip for chemically polishing and passivating zinc and cadmium are given in a bulletin which may be obtained from Kosmos Electro-Finishing Research, Inc., 140 Liberty St., Hackensack, N. J.

48. Buffs
Literature on buffs for use on automatic machines. The Bias Buff and Wheel Co., Div. of Riegel Textile Corp., 3464-66 Hudson Blvd., Jersey City 7, N. J.

49. Automatic Polishing Machinery
Literature describes line of polishing and buffing machines ranging in size up to 20 h.p. Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Michigan.

50. Electrostatic Painting
Brochure cites many case-history examples of successful installations of Ransburg No. 2 Process on a wide variety of products. Ransburg Electro-Coating Corp., Barth and Sanders, Indianapolis 7, Ind.

51. Primer
Data on Gripalloy, a satin-sheen primer in black and colors. Tenax Finishing Products Co., Newark, New Jersey.

52. Tack Cloth
Information on cloths treated to be efficient in removing dirt and grit prior to painting. Detro Sales Co., Inc., Culver City, Calif.

53. Emulsion Cleaner
Information on Enthone Emulsion Cleaner 75, for use as a dip cleaner that can be rinsed off with water, requires no heat. Enthone, Inc., 442 Elm St., New Haven 11, Conn.

54. Drawing Lubricants
"Choose Your Press Drawing Lubricants with Care" is the subject of a technical paper delivered by Leon Salz before the American Society of Lubricating Engineers. Copies can be obtained from Lubricants Div., Magnus Chemical Co., Inc., 208 South Ave., Garwood, N. J.

55. Safety Chart
A chart comparing the carbon monoxide concentration resulting from trucks operating with standard mufflers and those using catalytic exhaust purifiers. Oxy-Catalyst, Inc., Wayne 13, Pa.

56. Zinc Brightener
Literature describes advantages of Smoothex Zinc Brightener used in plating parts by the barrel method. This brightener makes zinc barrel plating more dependable, the manufacturer states. Smoothex, Inc., 10705 Briggs Rd., Cleveland 11, Ohio.

57. Alkaline Cleaners
Information on the use of Dow sodium orthosilicate and caustic soda for cleaning metal. The Dow Chemical Co., Dept. AL-610L, Midland, Mich.

58. Automatic Spray Finish Machines
Catalog covers the basic types of DeVilbiss automatic transverse finishing machines. Transverse machines of four types are covered: horizontal straight line, horizontal contour, vertical straight line and vertical contour machines. Models and specifications of the horizontal and vertical straight line types are included, as well as typical uses. Contour machines in both types are described. The DeVilbiss Co., Dept. 318, Toledo 1, Ohio.

59. Abrasive Selection Guide
Manual on blast cleaning abrasives, their characteristics, application and selection. Tells how to select the proper type and size of abrasive, covers abrasive properties and outlines the importance of selecting the correct abrasive for new blast cleaning equipment. Pangborn Corp., 5000 Pangborn Blvd., Hagerstown, Md.

60. Automatic Polishing Machines
Data on automatic machines for buffing, polishing and deburring. Packer Machine Co., Meriden, Conn.

61. Acrylic Coatings
Performance and application information on acrylic-based coatings. The Varnish Products Co., 5204 Harvard Ave., Cleveland, Ohio.

62. Automatic Plating Barrels
Details on automatic plating barrels, the advantages of the automatic barrel plating process. Frederic B. Stevens, Inc., 1800 Eighteenth St., Detroit 16, Mich.

63. Vacuum Metalizing Equipment
Bulletin describes and illustrates equipment for coating metals by vacuum metalizing. Consolidated Electrodynamics Corp., Rochester Div., Rochester 3, N. Y.

64. Electrostatic Spray Equipment
Bulletin IS-56A illustrates and describes ionic electrostatic spray equipment. Includes information on four different processes for electrostatic spray painting. Scientific Electric, 105-119 Monroe St., Garfield, N. J.

For Free Literature Circle Numbers on Card Inside Front Cover

For Free Literature Circle Numbers on Card Inside Front Cover

65. Vapor Degreasing
Booklet gives the story of new developments in vapor degreasing. Subjects covered include vapor degreasing principles, selection of vapor degreasing cycles, cleaning by ultrasonics, and properties of Triclene D. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept. PF-6, Wilmington 98, Delaware.

66. Barrel Finishing
Technical data folder describes chips and compounds, line of barrel finishing machines, processes for deburring, descaling, grinding, polishing and surface improvement. Roto Finish Co., 3704 Milham Rd., Kalamazoo, Mich.

67. Paint-Handling Equipment
Form 35-12 is a 31-page catalog of painting equipment. Includes complete information on and specifications for fluid pumps, spray guns, "Flo-Trol" surge eliminators, air and fluid hoses, air-line accessories and agitators. Stewart-Warner Corp., Alemite Div., Dept. D-27, 1850 Diversey Parkway, Chicago 14, Ill.

68. Coated Abrasives
Information on belts, rolls, sheets, discs and other coated abrasive products. Michigan Abrasive Co., 11910 E. 8-Mile Rd., Detroit 5, Mich.

69. Conveyorized Ultrasonic Cleaning
Complete details on the Ransohoff automatic-indexing conveyorized cleaning machine with ultrasonic treatment chamber. Ransohoff, Inc., 610 N. Fifth St., Hamilton, Ohio.

70. Spray Nozzles
Catalog 24 contains complete information on many types and sizes of nozzles. Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

71. Expanding Contact Wheels
Literature tells how slotted rubber contact wheel improves polishing with abrasive bands and cones. Chicago Rubber Co., Inc., 651 S. Market St., Waukegan, Illinois.

72. Electropolishing Stainless Steel
Describes baths used for electropolishing stainless steels, includes operating instructions for two of these baths. Electro-Glo Co., 1429 S. Talman Ave., Chicago 8, Ill.

73. Finishing Systems
Information on paint finishing systems, components: spray booths, washing equipment, drying and baking ovens, dust collecting systems, conveyorized systems. Peters-Dalton, Inc., 17908 Ryan Rd., Detroit 12, Mich.

74. Technical Paper on Bright Silver
An eight-page technical paper describes Silvrex Bright Silver Plating Process. Covers bath make-up and maintenance; anodes, tanks, temperatures; current densities; agitation; plating procedure; and gives a simplified method of removal of solution impurities. This process is said to give a mirror-bright finish directly from the bath through a complete range from flash to extra heavy deposits, and to produce hard, (Brinnell 135) ductile deposits. Sel-Rex Corp., Nutley 10, N. J.

75. Rectifiers
Data sheet tells how Rapid rectifiers with automatic programming equipment can make any sequence of metal finishing operations completely automatic. Rapid Electric Co., 2881 Middletown Rd., New York 61, N. Y.

76. Primer
Data on Zinoxide, a primer that is recommended for protection of steel products. Lowe Brothers, 424 East Third St., Dayton 2, Ohio.

77. Home Study
Booklet entitled "Go to School in Your Living Room" tells how people are using home study courses to improve themselves by further education. Discusses advantages of home-study program, emphasizes value of these courses for advanced study. Joseph B. Kushner Electroplating School, 115 Broad St., Stroudsburg 12F, Pa.

78. Barrel Finishing Information
A 52-page general catalog of Supersheen barrel finishing equipment. Contains detailed basic material on barrel finishing. Almco Div., Queen Stove Works, Inc., 84 Marshall St., Albert Lea, Minn.

79. Vinyl Chloride Coatings
Catalog entitled "Firestone Exon Solution Resins" contains information on properties of films formed from various coatings based on Exon vinyl chloride resins. Firestone Plastics Co., Dept. 7444, Pottstown, Pa.

80. Zinc Plating Additive
Information on McKeon's Zinc Brite, a cleansing and purifying agent for cyanide zinc plating baths. Sulphur Products Co., Inc., McKeon Bldg., 621 W. Pittsburgh St., Greensburg, Pa.

81. Advantages of Hot Spray
Revised and enlarged edition of booklet "Why Hot Spray?" Booklet lists the major benefits of hot spray application of finishing materials and explains each benefit in detail. Case histories are cited to illustrate each benefit. The Spee-Flo Co., Dept. PF-30, 720 Polk Ave., Houston 2, Tex.

82. Simple Analyses For Solutions
"Simple Methods for Analyzing Plating Solutions" is a 36-page bulletin which discusses analytical principles, use of apparatus and methods for sampling a plating solution. Outlines steps involved in 28 analytical methods for testing nickel, copper, silver and other metal-finishing solutions. Other sections of the bulletin describe equipment, component chemicals of solutions, atomic weights, acid concentrations and electrochemical data. Conversion tables are included. Analytical reagents are listed for brass, cadmium, chromic acid, copper cyanide and sulfate, gold, nickel, silver, tin and zinc plating solutions. Hanson-Van Winkle-Munning Co., Church St., Matawan, New Jersey.

83. Cutting Barrels
Literature gives details on how Hartford's enclosed barrel speeds deburring, descaling and polishing of screw machine parts, stampings and castings. Hartford Steel Ball Co., Inc., 14 Jefferson Ave., West Hartford 6, Conn.

84. Automatic Plating Machines
Diagrams illustrate operational advantages of Udylite automatic plating machines. Complete description of these machines, their outstanding features. Udylite Corp., Detroit 11, Mich.

85. Buffs and Compounds
Catalog describes and illustrates various cloth and sisal buffs, buffing compounds, contact wheels and abrasive belt grease sticks. Formax Mfg. Corp., Detroit 7, Mich.

86. Radiant Heat
A 20-page book describes applications for radiant heating units. Fostoria Pressed Steel Corp., Dept. 622, Fostoria, Ohio.

87. Crack-Free Chromium
Folder explains advantages of Crack-Free Chromium plating process. Metal & Thermit Corp., Rahway, N. J.

88. Activated Carbon
Technical data on the use of Darco activated carbon as a filter aid in plating. Chemicals Div., Atlas Powder Co., Wilmington 99, Del.

89. Hot Spray Unit
Information on a hot spray process that uses no moving parts to heat the paint. Air used in atomizing the paint is heated, and it in turn heats the paint. Thermospray Co., Inc., 60 E. 42nd St., New York 17, N. Y.

90. Complete Finishing Systems
Catalog A-657 describes the advantages of installing a complete, conveyorized paint finishing system. The R. C. Mahon Co., Detroit 34, Mich.

91. Barrel Finishing Media
Information on the advantages of Norton Alundum Tumblex "S" Spheres in barrel finishing. Norton Co., Worcester 6, Mass.

92. Hammer Finishes
Information on air-dry and baking hammer finishes. James B. Day & Co., 1872 Clybourn Ave., Chicago 14, Ill.

93. Chainless Conveyors
Bulletin LS-1 tells how materials can be transported through finishing operations more easily by using Landahl Chainless Conveyors. The Landahl Conveyor Co., 13142 Athens Ave., Cleveland 7, Ohio.

94. Degreasers
Catalog describes Ramco degreasers, ranging in size from laboratory units to conveyorized machines. Includes data on ultrasonic cleaning machines. Ramco Equipment Corp., 811 Edgewater Rd., New York 59, N. Y.

95. Vacuum Metalizing Coils
Booklet entitled "Sylvania Tungsten Coil Products" gives information on coils produced especially for vacuum metalizing. Sylvania Electric Products, Inc., Tungsten and Chemical Div., Towanda, Pennsylvania.

96. Temperature Controllers
Bulletin 1025-B diagrams operation of the Sarco indicating temperature controller, includes technical specifications for various models. Sarco Co., Inc., Empire State Bldg., New York 1, N. Y.

97. Metal Cleaners
Information on a complete line of metal-cleaning chemicals. Metal Processing Dept. 429, Pennsalt Chemicals Corp., 3 Penn Center, Philadelphia 2, Pennsylvania.

98. Industrial Finishes
Information on clear transparent paint finishes. G. J. Nikolas & Co., Inc., 2880 Washington Blvd., Bellwood, Ill.

99. Fluid Pump
Folder illustrates and describes Model P-6 1½-to-1 ratio transfer and supply pump, which is used for transporting liquid materials through pipe lines or hoses. Balcrank, Inc., 41 Disney St., Cincinnati 9, Ohio.

100. Airless Spray Painting
Bulletin explains principles of airless spray painting. Bede Products Corp., Dept. 1, Jackson St., Amherst, Ohio.

101. Soaker Tank Cleaners
Technical information outlining the latest developments in "engineered immersion tank cleaning." The DuBois Co., Inc., 1120 W. Front St., Cincinnati 3, Ohio.

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102. Drying Ovens
Information on paint drying ovens. The Carl Mayer Corp., 3030 Euclid Ave., Cleveland 15, Ohio.

103. Tumbling Barrel Linings
Information on linings for tumbling barrels. These liners resist chemicals, abrasion, thereby prolong life of barrel. Acme-Fisher Div., Broadway Rubber Corp., 529 E. Broadway, Louisville 2, Ky.

104. Used Equipment
Information on used buffing and polishing machines. J. Holland & Sons, Inc., 485 Keap St., Brooklyn 11, N. Y.

105. Automatic Plating Machines
Operational details and complete technical information on automatic plating machinery. Wagner Bros., Inc., 400 Midland Ave., Detroit 3, Mich.

106. Anode Bags
Information on cotton, nylon, vinylon, Orlon, Dynel and polyethylene anode bags, baffle bags, basket-saver bags. Allied Industries Co., 18400 Mt. Elliott Ave., Detroit 34, Mich.

107. Pre-Cut Spray Masks
Data on pre-cut spray masks of various shapes and sizes. By-Buk Co., 4314 W. Pico Blvd., Los Angeles 19, Calif.

108. Buffs
Data on air-cooled Ventex Buffs with permanent or removable centers. Bison Corp., 1935 Allen Ave., S.E., Canton, Ohio.

109. Gold Finishes
Description of air-dry and baking-type gold finishes. Duralac Chemical Corp., 84 Lister Ave., Newark 5, N. J.

110. Heat-Resistant Finish
Literature describes properties of Sicon, a silicone-based finish said to have excellent resistance to heat. Midland Industrial Finishes Co., Dept. F-6, Waukegan, Ill.

111. Cleaning Compound
Data on Apex RPS cleaning compound, designed for heavy-duty soak and electrolytic cleaning of ferrous metals. Apex Alkali Products Co., Main and Rector St., Philadelphia 27, Pa.

112. Work Gloves
Catalog describes and illustrates gloves for a wide variety of industrial applications. The Pioneer Rubber Co., 285 Tiffin Rd., Willard, Ohio.

113. Plating Rectifiers
Complete details on a line of silicon, germanium, and selenium rectifiers for producing d.c. power. Walker Div., Norma-Hoffmann Bearings Corp., Stamford, Conn.

114. Primer
Data on the advantageous features of Glidden Nu-Pon primer. The Glidden Co., Industrial Finishes Div., 900 Union Commerce Bldg., Cleveland 14, Ohio.

115. Degreasing Solvent
Data Sheet No. SS-195 describes Kleerall 95 degreasing solvent, which has improved toxicity rating. Octagon Process, Inc., 15 Bank St., Staten Island 1, N. Y.

116. Properties of Rhodium
Folder describes important properties of rhodium, such as reflectivity, electrical resistance, etc. Includes descriptions of two types of rhodium plating baths. Sigmund Cohn Mfg. Co., 121 S. Columbus Ave., Mount Vernon, N. Y.

117. Plastisols
Data Sheet No. 4 describes techniques for coating wire goods, tool handles, marine equipment, and other products with plastisols. Stanley Chemical Co., a Subsidiary of the Stanley Works, Dept. F, 1468 Berlin St., East Berlin, Conn.

118. Corrosion-Resistant Equipment
Bulletin gives helpful information on protective coatings that are useful in protecting structural surfaces and tank interiors and exteriors from corrosion. Includes table of properties and uses for various Amercoat protective coatings and primers. Also describes techniques for applying these materials. Amercoat Corporation, Dept. EF, 4809 Firestone Blvd., South Gate, Calif.

119. Black Finish for Stainless Steel
Data sheet describes Du-Lite 3-0, a black finish that can be applied on stainless steel at low temperatures. Du-Lite Chemical Corp., Middletown, Conn.

120. Buffing Compound
Data on the advantages of using Stutz Liquispray buffing compound. The Stutz Co., 4410 Carroll Ave., Chicago 24, Ill.

121. Paint Stripper
Data sheet gives full information on Quick-Strip No. 8, a non-flammable, flush-off paint remover that strips most finishes quickly without harm to the metal. Mitchell-Bradford Chemical Co., Wampus Lane, Milford, Conn.

122. Thickness Tester
Bulletin DF contains complete discussion of thickness testing with the Dermitron non-destructive thickness tester, an electronic thickness tester. Unit Process Assemblies, Inc., 61 E. 4th St., New York 3, N. Y.

123. Industrial Finishes
Data on lacquers, dopes, enamels, clear metal finishes, aircraft finishes, other industrial finishing materials. Randolph Products Co, Carlstadt, N. J.

124. Cleaning-Phosphatizing
Folder contains complete information on Wyandotte Pre-Fos, a compound that deposits a fine-grained phosphate coating while cleaning at the same time. Includes results of salt spray tests using this material, discussion of its physical properties and advantageous features. Wyandotte Chemicals Corp., Wyandotte, Mich.

125. Barrel Finishing Data
A 12-page booklet contains case-history studies of manufacturers who are using the Honite method of barrel finishing. Includes charts indexing types of media and compounds and their uses. Minnesota Mining & Manufacturing Co., Dept. FH-67, St. Paul 6, Minn.

126. Wash Primer
Literature and technical data on Vinsynite wash-primer-type pretreatment for increasing corrosion resistance, adhesion. Thompson & Co., 1010 Allegheny Ave., Oakmont, Pa.

127. Recirculating Ovens
Bulletin No. 125B describes and illustrates various models of standard cabinet-type electric- and gas-heated recirculating ovens. W. S. Rockwell Co., 2907 Eliot St., Fairfield, Conn.

128. Conveyorized Finishing Systems
Literature contains case-history stories of installations where Koch Finishing Systems have improved efficiency. George Koch Sons, Inc., Evansville 4, Indiana.

129. Aluminum-Treatment Chemicals
Literature gives detailed technical descriptions of Alkalume Cleaners, which are especially formulated for use on aluminum and aluminum alloys; Alkalume Pre-Plate, a zincate bath used to prepare aluminum for plating; Acid Solvent Emulsion Cleaner No. 1, an effective cleaner for use on aluminum parts prior to finishing. Northwest Chemical Co., 9310 Roselawn Ave., Detroit 4, Mich.

130. Fixture-Type Spray Painting Equipment
Literature on fixture-type spray painting equipment, mask-washing machines, electro-formed spray painting masks. Conforming Matrix Corporation, 356 Toledo Factories Bldg., Toledo 2, Ohio.

131. Conveyorized Ultrasonic Cleaning
Information on conveyorized ultrasonic cleaning. General Ultrasonics Co., 67 Mulberry St., Hartford 3, Conn.

132. Protective Finish
Data on Kadmoid, a tough, durable finish that is said to provide excellent resistance to salt and other chemicals. Universal Paint & Varnish, Inc., Box 199, Bedford, Ohio.

133. Greaseless Buffing Compounds
Data on Atlantic Greaseless Compounds. The Atlantic Compound Co., 1860 Baldwin St., Waterbury, Conn.

134. Buffers and Polishers
Catalog describes many types and sizes of buffers and polishers. Complete line of bench grinders and buffers, speed lathes, dust collectors. Cincinnati Electrical Tool Co., 322 Mt. Hope Ave., Cincinnati 4, Ohio.

135. Paint Stripping Information
Booklet explains methods of hot and cold paint stripping as used to remove enamels, japans, lacquers, varnishes and other organic finishes. DuBois Co., Inc., 1120 W. Front St., Cincinnati 3, Ohio.

136. Stripper
Information on Lea Synstrip, a liquid stripper that can be used to remove enamel, lacquer, synthetic coatings, baked enamels, epoxies, phenolics, ureas. The Lea Manufacturing Co., 16 Cherry Ave., Waterbury 20, Conn.

137. Vacuum Metalizing Equipment
Information on equipment and supplies needed to apply metallic coatings by vacuum method. NRC Equipment Corp., Dept. 233, 233 Charlemont St., Newton Highlands 61, Mass.

138. Plastic Lining
Booklet describes T-Lock Amer-Plate, a plastic lining made for concrete pipes and tunnels. Includes complete discussion of properties, including resistance to acids, alkalies and solvents. Amercoat Corp., Dept. EF, 4809 Firestone Blvd., South Gate, Calif.

139. Barrel Finishing Booklet
Booklet describes barrel finishing equipment and materials, tells how to use them. The Abbott Ball Co., 1064 New Britain Ave., Hartford 10, Conn.

140. How To Test Zero Mist
Udylite booklet includes description of a method for testing effectiveness of mist-suppressant called "Zero-Mist." The Udylite Corp., Detroit 11, Mich.

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141. Automatic Polishing Equipment
Literature on rotary and straight-line automatic polishing and buffing machines. Acme Manufacturing Co., 1400 E. Nine Mile Rd., Detroit 20, Mich.

142. Aluminum Conversion Coatings
Information on Iridite No. 14 and No. 14-2 (Al-Coat) conversion coatings for aluminum. These chemicals produce a surface on aluminum that increases corrosion resistance and provides a paint base. Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Md.

143. Buffs
Data on buffs with patented "Pre-Assembly" feature that allows assembling complete buffing heads, with up to 100 sections each, in advance. American Buff Co., 2414 S. Lasalle St., Chicago 16, Ill.

144. Guide to Chemical Treatment of Metals
ACP Guide to The Chemical Treatment of Metals lists and describes properties of and uses for a variety of chemicals and processes useful in finishing processes. American Chemical Paint Co., Ambler 14, Pa.

145. Spray Booth Maintenance
Information on "Liquid Envelope" strippable spray booth coatings, for quickly and easily removing overspray from spray booth walls. Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

146. Degreasing Solvent
Data on the advantages of using Blacosolv degreasing solvents. G. S. Blakeslee & Co., 1844 S. Laramie Ave., Chicago 50, Ill.

147. Tack Cloth
How to produce a higher-quality finish by using chemically treated cloths to wipe off dust and dirt just prior to paint finishing. Bond Chemical Products Co., 2639 N. Clybourn Ave., Chicago 14, Ill.

148. Conveyors
Bulletin No. 41 describes overhead conveyors for use in finishing. The E. W. Buschman Co., 4516 Clifton Ave., Cincinnati 32, Ohio.

149. Heating Process Solutions
A 52-page book gives technical information on the Dean Thermo-Panel Coil. Dean Thermo-Panel Coil Div., Dean Products, Inc., 622 Franklin Ave., Brooklyn 38, N. Y.

150. Soak Cleaner
Technical bulletin on Cowles NS Soak Cleaner. Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio.

151. Heavy-Duty Cleaner
Detrex 37, a heavy-duty alkali cleaner is said to provide excellent cleaning action at low concentrations. Detrex Chemical Industries, Inc., Box 501-C, Detroit 32, Mich.

152. Faster Buffing
Patented spoke-mounting principle is said to produce faster cutting action, smoother finishes. Guaranteed Buff Co., 20 Vandam St., New York 13, N. Y.

153. Chemicals
A 16-page booklet lists many chemicals available from Harshaw. Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio.

154. Tubular Filters
Bulletin 123-1155 describes tubular filter, useful in polishing, as a trap filter, and as a scavenger for large filters. Industrial Filter & Pump Mfg. Co., 5904 Ogden Ave., Chicago 50, Ill.

155. Bright Copper Process
Complete information on Jelco Cop-Brite, which can be used in both still and barrel plating solutions. Jelco Finishing Equipment Corp., 153 E. 26th St., New York 10, N. Y.

156. Centrifugal Dryer
A 4-page folder describes New Holland Model 20 Kreider Centrifugal Dryer, useful in air-drying small parts rapidly. New Holland Machine Co., Dept. F-657, New Holland, Pa.

157. For Power Washers
Data on Oakite Composition No. 98, useful as a cleaning compound in power washers. Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

158. Chromate Finish
Technical information on producing a chromate finish with a minimum of iridescence, using Proseal 1 and 3 plus a sealing treatment with Proseal A-2 or 2-B. Promat Div., Poor & Co., Dept. PF-3, 851 S. Market St., Waukegan, Ill.

159. Soak Cleaner
Literature on Diversey No. 404, a soak cleaner for brass and steel. Metal Industries Dept., The Diversey Corp., 1820 Roscoe St., Chicago 13, Ill.

160. Deburring
Full details on the 3000 Series Burr-Rite Sr., an improved machine for burr removal. Globe Div., Casalbi Co., 546 Wayne St., Jackson, Mich.

43. Thickness Gage
Folder describes features, application, specifications, calibration and operation of the hand-held, self-powered instrument. General Electric Co., Schenectady 5, New York.

44. Bubble Viscometers
Literature on the Gardner Bubble viscometer, a testing setup for checking the viscosity of liquids against sealed standard tubes. Gardner Laboratory, Inc., Bethesda 14, Md.

45. Corrosion-Proof Heat Exchangers
Complete information on two impervious graphite heat exchangers. "Cubical" unit provides greatest possible amount of transfer surface per unit of volume by containing all transfer within a small impervious graphite cube. "Cross-Bore" exchangers utilize a "one-piece" cylindrical bundle, and have the same overall dimensions as a standard tube and shell unit. Falls Industries, Inc., Aurora Rd., Solon, Ohio.

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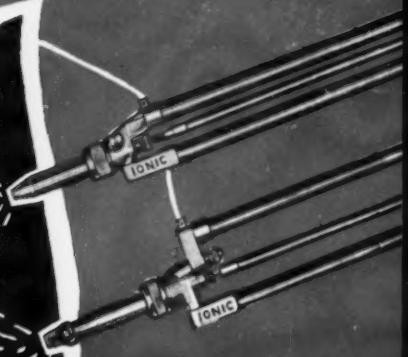

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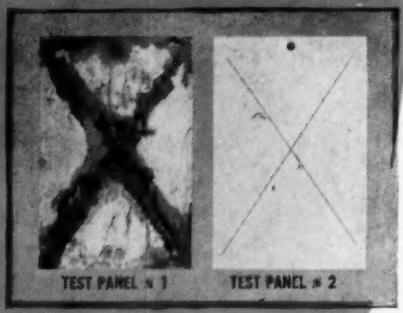

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From the desk of the

PRODUCTION MANAGER

You may not have noticed it from their outward appearance--but take it from me, the Detrex Paintbond process has really improved the finish on our refrigerators.

The enamel finish flows on smoother, easier and faster than ever before. Laboratory tests prove that resistance to rust and corrosion is increased far beyond "normal use" requirements.

Our sales department can't place too much emphasis on this Paintbond feature.

Whatever your cleaning and processing needs!

A pioneer in the metal cleaning and processing field since 1920, Detrex is now the established leader—offering the finest and most complete combination of chemicals, equipment and service in the industry.

DETREX CHEMICAL INDUSTRIES, INC.

BOX 501-C, DETROIT 32, MICHIGAN

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